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Loss of Actinic Sunshine as a Health Problem of Cities*

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IN the light of advances during the past few decades, it is becoming increasingly evident that progress in the prevention of air pollution has not kept pace with other public health problems, which but a few years ago lay before the engineering profession. Control of air pollution is still an acute problem of cities, in sharp contrast to its companion projects of water and milk protection, which are now no longer problems, but actualities of accomplishment.

Perhaps the reason for this has been that the pollution of the air by products of combustion has been treated primarily as of economic and esthetic concern, rather than as a basic health problem. It is true that the irritating properties of smoke upon the respiratory membranes and the accumulation of soot in the lungs of the urban dweller have been recited at length as arguments against air pollution; but they have not been sufficiently convincing to bring about a satisfactory solution.

More recently, studies of the loss of actinic sunshine in its passage through the smoke filled atmosphere of cities, have shown a decided and prolonged loss of the ultra-violet light component so necessary to growth of the young and to maintenance of the normal calcium balance of the body.[1, 2, 3]

The significance of this loss from a health aspect is in need of evaluation and calls for a review of the physiologic needs of the body in respect to ultra-violet light or its dietary equivalent, vitamin D, and for a more general realization of the effects upon health which follow as a result of prolonged lack or insufficient absorption of this important form of vital energy.

The obscuring effect of smoke acts to reduce the intensity of the anti-rachitic and erythemal rays, especially in the winter, but does not always occlude them entirely.

Experiments on rats in New York,[4] in Toronto,[5] and in the outskirts of Washington, D. C.,[6] and on chickens in Boston,[7] indicate the presence of weak antirachitic rays in winter sunshine of those localities, sufficient to protect these animals in all-day ex-

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posures. However, attempts to protect babies [8, 9, 10] from rickets solely by means of winter sunshine, administered both directly and through semitransparent windows, have yielded conflicting results and have been on the whole disappointing, in so far as they are applicable to babies under ordinary living conditions.[11] Skyshine [10] as an antirachitic agent during the winter of the temperate zones has proved to be ineffective. Furthermore, recent studies of the solar actinic rays in Chicago, as determined by spectrographic and actinic methods, show that the erythemal and antirachitic rays in the range below 308 mu. (3080 Ängstrom units), which are occasionally demonstrable by the spectograph in winter sunshine, are of extremely low actinic intensity.[12]

DERANGEMENT OF THE CALCIUM METABOLISM

Gamble says regarding rickets: "No other disease is nearly as prevalent during the first two years of life." [13] Holt and Howland also regard rickets as "probably the most prevalent disease of infants, at least in the cities." [14]

Climate and Season—Rickets is primarily a disease of the temperate zones and is far more common in cities than in the surrounding rural districts. It occurs chiefly in the winter and late spring, and virtually disappears during the summer. The disease is rare in tropical regions where sunshine is of good actinic quality the year around, and also in polar regions where the solar ultra-violet light deficiency is offset by general use of raw fish oils in the diet.[15]

Hess and Lundagen report that both normal and rachitic babies in New York [16] show a seasonal tide of calcium and phosphorus in the blood—from a normal in summer of 11 mg. of calcium and about 5 mg. of phosphorus, to a low ebb in March of 9 mg. of calcium and 3.6 mg. of phosphorus per 100 c.c. of blood. Similar findings have been observed in Germany [17] and in New Orleans.[18] Older children in New York also exhibited this ebb and flow of minerals in the blood during the period of low and high actinic quality of sunshine.[16]

Utilization of Calcium—The physiological effect of ultra-violet light is apparently exerted by absorption into the skin, principally through the agency of ergosterol, by which it is converted into a catalytic principle, vitamin D. This principle circulates in the blood and is also stored in certain organs, such as the liver and glandular tissues.

Deficiency of vitamin D in the body expresses itself as failure to absorb and utilize the lime and phosphorus of the food, with resulting want of lime in the tissues. In the blood, the deficiency is recorded as low blood phosphorus rather than as decidedly low blood calcium.[19] The phosphorus appears to be essential to lime retention, since, without it, the lime is largely excreted unused, while the body continues to suffer from want of lime.

Lime is deposited in the bony structures mainly as the insoluble tricalcium phosphate. It is absorbed from the intestines and circulates in the blood in the more soluble forms, such as calcium bicarbonate and calcium acid phosphate.[19]

Interesting speculation on the mechanism of absorption of lime salts from the food has been inspired by the work of Yoder,[20] Bacharach and Jephcott,[21] and others, who report that in rickets the bowel contents are relatively alkaline and ultra-violet light or vitamin D lowers the pH, rendering the intestinal contents more acid. The greater solubility of lime salts in an acid medium is well recognized. This premise is in need of further substantiation, but for the present there is no

better hypothesis to explain the observed effects of vitamin D on lime absorption.

PHYSIOLOGICAL NEEDS

The needs of the body for lime salts may be classified conveniently as: (1) Those of the periods of heavy calcium demand, namely, (a) growth, (b) expectant motherhood, (c) lactation; (2) those of tooth development and preservation; (3) those concerned with the resistance of the body to bacterial invasion.

Growth—The excessive demands of the infant and growing child for lime, to make bones and teeth and maintain bodily health, are scarcely in need of reiteration, beyond the too little realized fact that rickets is still widely prevalent. The disease is of a milder form, however, than a few years ago, due in a measure to partial correction of the solar deficiency by use of cod liver oil, irradiated foods, and artificial ultra-violet light.

The prevalence of rickets in groups of children in various cities has been reported as 96 per cent in New Haven,[22] 25 per cent in New York,[23] 95 per cent in Boston,[24] and 19 per cent in Pittsburgh. In Chicago, during 1931, 16 per cent of the children of preschool age examined routinely were found to present visible evidences of rickets.

Daniels and Hutton [25] conclude from an extensive series of "calcium balance" tests on children, that "infants should retain 40 to 50 mg. of calcium and 20 to 25 mg. of phosphorus per kilogram of body weight."

Expectant Motherhood—The needs of the expectant mother, to meet the calcium requirements of the growing fetus for bone and tooth formation, seemingly have not been fully appreciated. Calcium balance experiments on expectant mothers, in different parts of the world, have thrown interesting light on this need.

Coons of the University of Chicago,[26] in a study of 9 expectant mothers, found that 6 were suffering from a "negative calcium balance," that is, were not absorbing from their food and retaining the additional lime needed by the developing babies. This was true more generally in the overcast season of the year. The corollary is that lime from the mother's own bones and teeth were being drawn upon to supply the baby's needs. Further evidence of this appeared in the clinical condition of the mothers, and in at least one of the infants born in a "pre-rachitic" state.

Similar experiments during the prenatal period, by Hoffstrom,[27] Landsberg,[28] Macy, Hunscher, et al.,[29] have also clearly established the excessive calcium demands of pregnancy.

A striking demonstration of the need of expectant mothers for lime and phosphorus is reported by Kathleen Vaughan.[30] Under a religious custom as practiced in India, girls of the upper classes are kept shut in out of the sunlight from an early age until some time after marriage. They live in darkened houses, though there often are inner courtyards, and are not allowed to go out unless heavily veiled. They have no exercise. During pregnancy these women develop a severe form of bone softening known as osteomalacia, due to their failure to absorb sufficient lime and phosphorus from their food to meet the excessive demands of the prenatal state.

The symptoms are severe, "boring" pains in the bony ring of the pelvis and in the ribs, a peculiar waddling gait and inability to climb stairs due to flattening of the softened pelvic bones, crumbling teeth, tetany or convulsions due to calcium deficiency, and occasionally spontaneous fracture of the long bones. Many die in childbirth, being weakened, deformed, and extremely susceptible to the natal infections.

In contrast to these women of the

higher castes, are the "boat women" of the poorer classes who live and work out-of-doors with the men. They are fine physical specimens, and during pregnancy give no evidence of calcium deficiency, or any of its distressing symptoms. Being continually out-of-doors in the sunlight, they are able to absorb the needed lime and phosphorus from their food, whereas their presumably more fortunate sisters of the Purdah system are unable to do so.

Tests on animals show quite definitely that pregnancy increases the normal calcium demand and often brings about a condition of "negative calcium balance," in which lime from the mother's body must go to supply the needs of the fetus.[31, 32]

In Breslau, a study of some 350 expectant mothers was recently reported by Freund and Schmitt,[33] indicating that the use of artificial ultra-violet light greatly improved the calcium metabolism of the expectant mothers, and was reflected in larger, stronger babies at term, with less rickets afterwards.

Lactation—Lactation is another function of maternity which throws a heavy demand for calcium upon the mother's body and greatly increases her need of actinic sunshine, or its equivalent from artificial sources or in the diet.

Prior to the birth of the offspring, the normal mother stores great quantities of lime to be used for secreting milk. This excessive calcium demand continues during the entire lactating period. Here again, ultra-violet light and vitamin D play an essential part in abstracting the needed lime from the food. Deficiency of ultra-violet light or vitamin D in these mothers reduces the retention of lime, and necessitates the disintegration of the lime-bearing structures of the mother's body to supply the needed minerals for milk production. At times, this source fails after a period, and the milk becomes of poor quality.[29]

The Teeth—The needs of the teeth for lime salts, both for initial growth and for protection from decay, are another little appreciated public health problem. The researches of Mellanby and others have shown an extremely high prevalence of defective first or temporary teeth of rachitic type in the children of England, and an almost equal degree of defectiveness of the permanent teeth.[34] Microscopic studies of the teeth of rachitic puppies showed a lack of lime in the layers of tooth substance laid down during deficiency of ultra-violet light and vitamin D.[35] Furthermore, when the deficiency was corrected, only the new layers of dentine received the normal quota of lime, leaving the older layers still deficient. The vacuoles, or openings, in such defective teeth are called "interglobular spaces," and it is noted in microscopic examination of decaying teeth that the decay begins in these spaces and defective areas and extends thence into the surrounding tooth structure.[34]

Resistance to Bacterial Invasion—The lime requirements of the body, for resistance to bacterial invasion, are little understood. The mechanism by which protective substances are formed in the blood is still subject to speculation, the theory that the normal alkaline reserve of the blood plays the star rôle, running ahead of most others.

The clinical fact is that children and adults with disturbed calcium metabolism are an easier prey to bacterial infection than are normal persons. Rachitic children, as a group, acquire the ailments of childhood more easily and have a higher fatality rate from these infections, than do normal children.[36] The same is true of experimental animals.[37] The Purdah mothers of India, previously referred to, are especially susceptible to infection during labor, according to reports of obstetricians attending them.

In further confirmation of these facts are the respiratory death rates in the larger cities, which have a seasonal ebb and flow, quite comparable to that of the blood calcium and phosphorus of babies and children, reaching a peak in March, at the end of the low actinic period, and falling from that time on, to the minimum in June, July and August.[38]

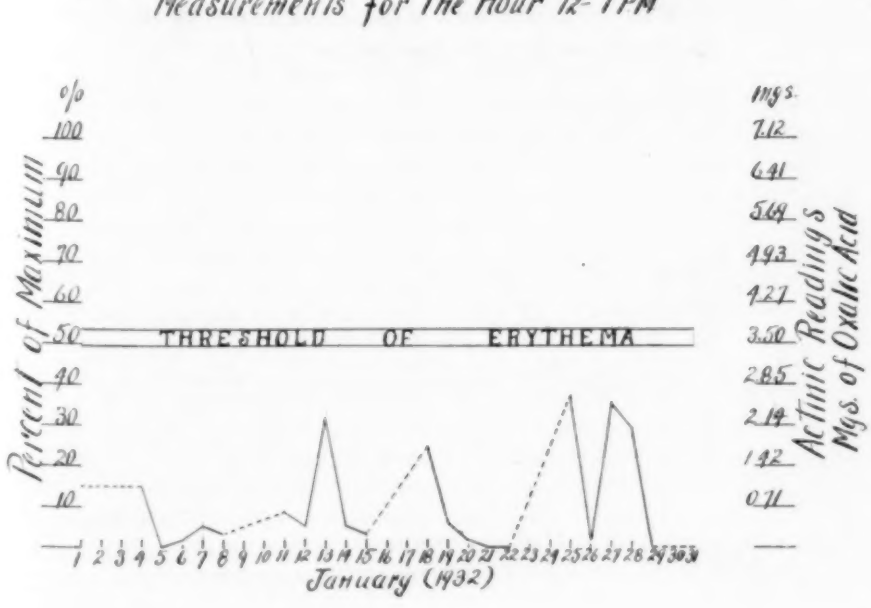
In Montreal, studies of the seasonal incidence of contagion by Cushing led to the belief that the stronger actinic sunshine of these months in some way acted to bring contagion to a low ebb.[39]

Maughan and Smiley, in studies of the incidence of the common cold among the students of Cornell University over several years, came to the conclusion that ultra-violet light deficiency was a factor in predisposition to these infections in " cold susceptible " persons.[40]

THE REMEDY

This, then, is our public health problem, dealing with the calcium derangement of a significant part of the urban population, due in the last analysis to deficiency of actinic sunshine during a considerable portion of the year. The normal seasonal duration of deficient sunshine of perhaps 2 or 3 months, appears to have been at least partly provided against in nature's plan, by storage of vitamin D in the tissues of the body. The prolongation of this seasonal low period by 2 to 4 additional months, due to occlusion of actinic sunshine by smoke, is probably a factor in bringing about the unfavorable physiological reactions of calcium unbalance. Such a conclusion seems reasonable, since evidences of calcium derangement are far less prevalent in rural than in urban districts. As to specific remedies, we suggest:

FIGURE I



1. Climatic surveys of cities to determine: (a) the normal seasonal actinic deficiency. This can perhaps be most simply accomplished by measuring the angle of incidence of the sun's rays at noon [41] and recording the number of months of the year in which it is below 35° from the horizontal; (b) determination of the actinic loss of sunshine due to smoke, which is estimated by comparison of simultaneous readings in urban and nearby rural testing points. For this purpose there are available the simpler actinic methods [42, 43, 44] and the portable spectrographic method [12] now developed to a practical stage for field work.

2. Education of urban populations in the health value of the out-of-doors, with specific information on the local daily actinic value of sunshine, Figures I and II, the hourly variation according to the season, and the minimal erythemal time for untanned skin, the latter of which can be easily determined by the device shown in Figure III.

3. Provision of substitutes for actinic sunshine, such as ultra-violet lamps in infant welfare centers and free distribution of cod liver oil or vitamin D foods during the prolonged overcast season. Cincinnati,[45] Pittsburgh, and Chicago have been using some of these measures.

But in all such attempts to meet an acute human need, are we not begging the question? Did the warning to "boil the water" really go far to prevent typhoid fever, while unsafe water continued to flow into city mains? Did the advice to boil the milk really check the conveyance of bovine tuberculosis in a significant way, while pasteurizing plants and tuberculin testing of herds were still remote and visionary projects?

We know they did not. There is ever a substantial number of persons who disregard advice, who cannot afford treatment, who neglect to follow a precautionary program consistently. What we need most is pure water for *all*—the unthinking as well as the informed; safe milk for *all;* clean air; and the full actinic value of sunshine at all seasons of the year for the *entire population.*

We must turn for our remedy to the public health engineer. We can now

FIGURE II

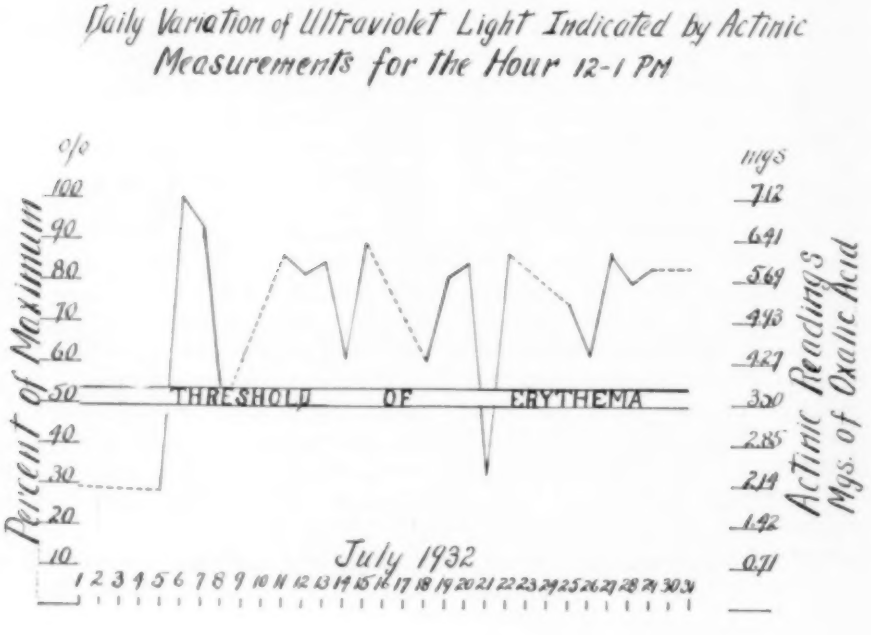
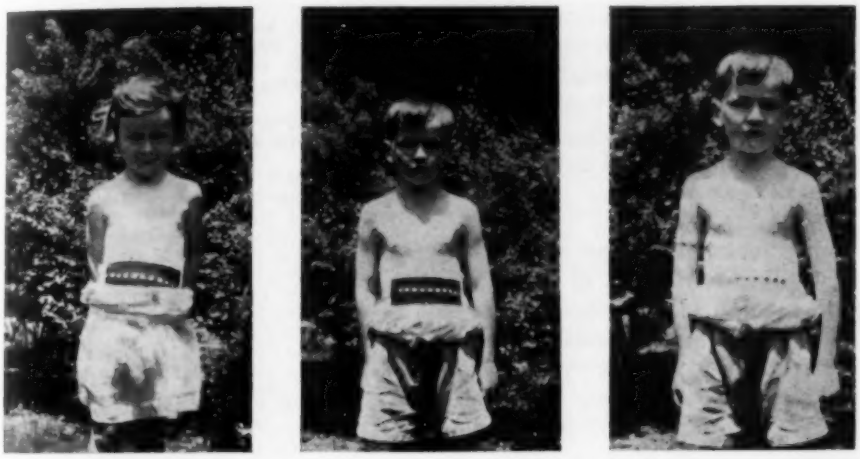


FIGURE III

DEVICE TO RECORD ERYTHEMAL TIME



The child is placed in direct sunshine for 40 to 50 minutes, with shoulders covered by cloth.

Each of the openings in the opaque strip is covered successively at 5 minute intervals with a paper sticker—beginning at the left.

Thus, a series of exposures of 5 minutes, 10 minutes, 15 minutes, etc., up to the maximum, is made. After 12 hours, the erythemal spots are counted from the right, back to the last visible mark. This number, subtracted from the total number of openings exposed, and then multiplied by five, gives the minimal erythemal time.

In Chicago, during June, the mean erythemal time was 20 minutes—in both children and adults.

offer a health motive for the clearing of the skies, a motive as fundamental and far reaching as those that have brought about the control of water-borne and milk-borne disease. Our children mean much to us—as do our mothers and mothers-to-be. Do they mean enough to spur the correction of imperfect and wasteful methods of combustion?

There are certain trends of heating practice springing up here and there which seem to point the way. The central steam heating plant to burn coal and oil in congested centers is now successfully competing with individual heating plants, driving the smaller heating units out of use. One can see this development now in process of evolution in the business section of Kansas City, Mo., with a noticeable effect upon air conditions. Do not the same economic principles apply to cities everywhere, and on a larger scale?

Should government go into the business of providing heat for its populations without pollution of the air, in great central plants connected by underground pipes to every building in the respective districts? Or is this service a function of private enterprise, profitable on an extended scale, as well as in a limited way?

Should there be underground conduits like the aqueducts and sewers, to carry objectionable fumes of combustion and industrial processes to a common treatment plant or discharge them at a safe distance?

What can be done to increase the use of natural gas for heating and indus-

trial purposes in those centers in which it is available? The combustion products of gas heating do not materially occlude the sunshine.[38]

What is the hope of electric heating in the future, especially where hydroelectric power is within reach, or where coal fields, adjacent to water supplies, are within 200 or 300 miles, near which coal could be burned and converted into current?

THE RÔLE OF THE ENGINEER

The ultimate disposal of this newer health problem of air pollution falls to the lot of the public health engineer, just as others have done—problems of equal initial proportions, but which have in the end proved to be more colossal in prospect than in the accomplishment.

The engineering profession has never failed to provide the way, once a definite health dictum has been laid down for its guidance.

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Hats and Stethoscopes

THE influences which bring about the abandonment of time-honored customs are varied and often surprising. An editorial in the British Medical Journal brings out one of the most curious of these.

In England, the top-hat has been for generations the dignified insignia of the physician, and even country doctors, winter and summer, wore it. The medical attendant of the Victorian era considered it the only hat appropriate to his dignity, and we are told that, in addition, he found it a convenient receptacle for his one-piece stethoscope, so much so that Sherlock Holmes would recognize a doctor's "topper" by the bulge in the crown.

Now this dignified headdress has departed from the medical field, though it is still the professional emblem of stockbrokers, undertakers and bank messengers.

What has brought about the change? It is credited to the motor car chiefly, but partly to the World War. People have gotten used to seeing their family physician in almost any kind of costume. The doctor is certainly to be congratulated on his additional comfort.—*British Medical Journal*, June 3, 1933, page 971.

Is Malnutrition Increasing?

ESTHER JACOBS

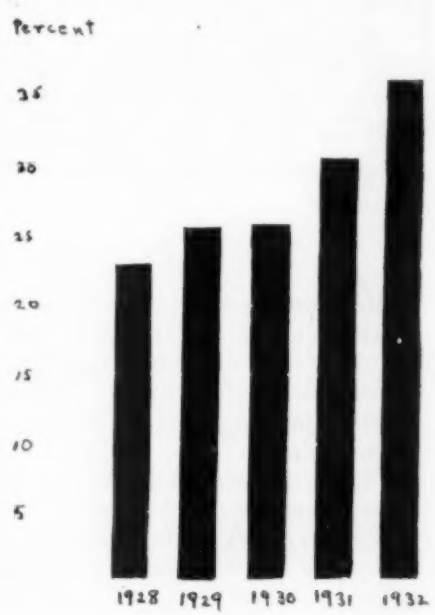
Executive Secretary, Community Health Center, Philadelphia, Pa.

RECOGNIZING the wide variance of opinion with regard to the entire subject of malnutrition, and appreciating that the basis of diagnosis differs with each individual physician, we deem it wise to state at the very beginning that we propose only to show what we have found in studying our diagnoses of malnutrition on clients coming to the Community Health Center diagnostic medical clinics during a five-year period.

The Diagnostic Clinic is only one of the activities of the Community Health Center, which also includes a Dental Clinic, giving complete treatment service; a Mental Hygiene Department, giving both treatment and diagnostic service to a limited number of patients; and a Health Extension Department, which carries on an educational program. The clients are referred by the constituent social agencies in the Federation of Jewish Charities, with the exception of a very small group examined each year for the Mothers' Assistance Fund. Both family and childcare agencies (including day nurseries) are represented. The patients are almost all Jewish. They are a dependent group of individuals, referred for periodic health examinations semi-annually or annually, depending on the age of the client and the referring agency, so that a certain proportion have been coming back at regular intervals over this five-year period. The agency referring the case assumes full responsibility for supervision of the client's health follow-up.

The Community Health Center medical examiners are practicing physicians of experience and standing in the community, who give us clinic periods on a paid hourly basis. The work is under the direction of Dr. Bernard Kohn. The appointment system is followed. Each new patient sent to us is preceded by as complete a medical history as the case worker is able to secure, plus any significant

CHART I



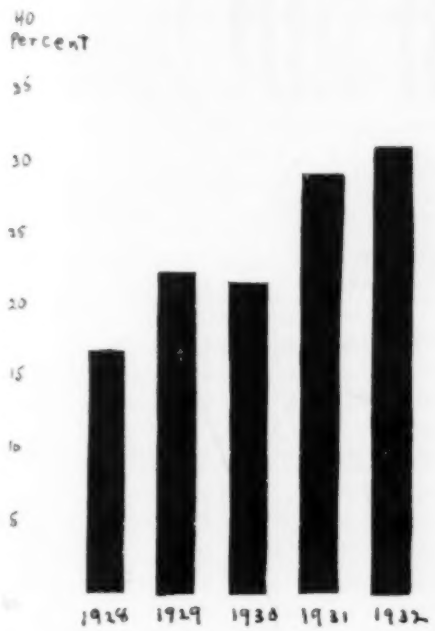
DIAGNOSES OF MALNUTRITION AMONG COMMUNITY HEALTH CENTER PATIENTS, MAY TO OCTOBER, INCLUSIVE, FOR EACH YEAR (IN PERCENTAGES OF TOTAL NUMBER OF PATIENTS)

medical-social data. In the cases of re-examination, medical history is supplemented to bring the medical data up to date.

A report of any treatment that has been secured, either as a result of recommendations previously made by the Community Health Center, or because of some illness which occurred during the interval between examinations, is usually sent to the Community Health Center by the case worker at the time such treatment is completed.

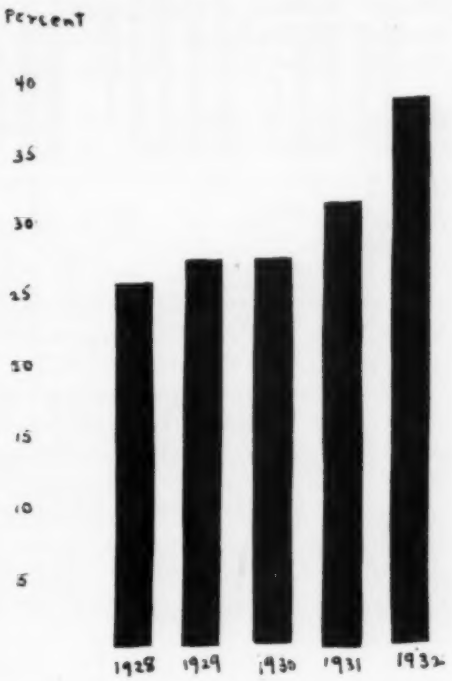
The medical staff based their diagnoses of malnutrition on clinical findings and symptomatology—height, weight, condition of skin and tissues, mucous membrane, musculature, and patient's general physical condition. A staff meeting held just prior to the making of this study brought out general agreement among the physicians as to the diagnosis. Since the staff was materially changed between 1929 and

CHART II



DIAGNOSES OF MALNUTRITION AMONG COMMUNITY HEALTH CENTER PATIENTS, MAY TO OCTOBER, INCLUSIVE, FOR EACH YEAR (IN PERCENTAGES OF TOTAL NUMBER OF NEW CASES *)

CHART III



DIAGNOSES OF MALNUTRITION AMONG COMMUNITY HEALTH CENTER PATIENTS, MAY TO OCTOBER, INCLUSIVE, FOR EACH YEAR (IN PERCENTAGES OF TOTAL NUMBER OF OLD CASES *)

* *New* cases means those patients seen for the first time at the Community Health Center. In this group there has been a very definite increase since 1930. The proportionate increase in malnutrition diagnoses from 1928 to 1932 in the new cases was 82.3 per cent.

* *Old* cases means those previously known to the Community Health Center and re-examined for the first time in that fiscal year. New cases in 1928 become old cases in 1929, and so on, for each succeeding year. Therefore, although there is no duplication in the data for the individual year, the old cases necessarily are cumulative.

It would seem from this material that the *percentage* of malnutrition according to Community Health Center diagnoses was higher in old cases than in new. However, the *proportionate* increase over the five-year period is lower in the old cases.

1930, the same question was put to our former staff members, each of whom stressed the same points in defining the basis for a diagnosis of malnutrition.

The study covered the five-year period, 1928 to 1932, taking all individuals examined during the first six months of the fiscal year, May to October inclusive, which brought the material practically up to date. The data are shown in the following table.

DIAGNOSES OF MALNUTRITION IN INDIVIDUALS EXAMINED AT COMMUNITY HEALTH CENTER MAY TO OCTOBER (INCLUSIVE)—1928—1929—1930—1931—1932.

	1928			1929			1930			1931			1932		
	Individuals Exam'd	Malnutrition	% with Malnutrition	Individuals Exam'd	Malnutrition	% with Malnutrition	Individuals Exam'd	Malnutrition	% with Malnutrition	Individuals Exam'd	Malnutrition	% with Malnutrition	Individuals Exam'd	Malnutrition	% with Malnutrition
NEW															
Under 6	177	20	11.3	157	18	11.4	107	12	11.2	111	23	20.7	98	16	16.3
6 to 12	189	51	27.4	216	56	25.9	142	37	26.2	173	64	37.0	193	72	37.3
13 to 16	84	16	19.0	82	23	28.0	68	18	26.4	51	22	43.1	92	36	39.1
17 to 20	29	2	6.9	41	6	14.6	9	3	33.3	15	2	13.3	16	3	18.7
Over 20	230	32	13.9	232	60	25.8	136	30	22.0	121	27	22.3	144	42	29.2
TOTAL NEW	709	121	17.0	728	163	22.3	462	100	21.6	471	138	29.3	543	169	31.0
OLD															
Under 6	200	23	11.5	196	24	12.2	161	18	11.1	149	20	13.4	124	35	28.2
6 to 12	600	190	31.6	675	216	32.0	623	178	28.5	616	217	35.2	543	234	43.0
13 to 16	310	96	30.9	280	84	30.0	278	91	32.7	281	102	36.3	291	127	43.6
17 to 20	84	29	34.5	83	32	38.5	53	26	49.0	58	18	31.0	62	22	35.4
Over 20	227	31	13.6	268	55	20.5	194	49	25.2	149	37	24.8	125	29	23.2
TOTAL OLD	1,421	369	25.9	1,502	411	27.3	1,309	362	27.6	1,253	394	31.4	1,145	447	39.0
TOTALS															
Under 6	377	43	11.4	353	42	11.9	268	30	11.1	260	43	16.5	222	51	22.9
6 to 12	789	241	30.5	891	272	30.5	765	215	28.1	789	281	35.6	736	306	41.5
13 to 16	394	112	28.4	362	107	29.5	346	109	31.5	332	124	37.3	383	163	42.5
17 to 20	113	31	27.4	124	38	30.6	62	29	46.7	73	20	27.4	78	25	32.0
Over 20	457	63	13.7	500	115	23.0	330	79	23.9	270	64	23.7	269	71	26.3
GRAND TOTALS	2,130	490	23.0	2,230	574	25.7	1,771	462	26.0	1,724	532	30.8	1,688	616	36.5

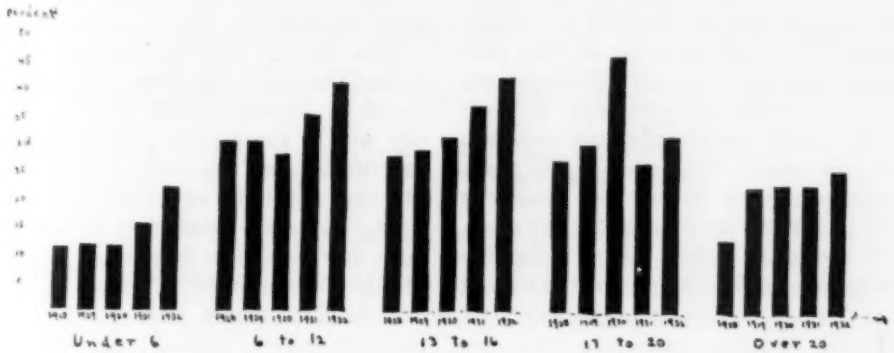
There has been a gradual increase in malnutrition diagnoses from 23 per cent in 1928 to 36.5 per cent in 1932, or a proportionate increase for all cases of 56.5 per cent.

During 1928 and 1929 a nutrition worker on the staff may have made the physicians more nutrition conscious during those years, and may have possibly increased the malnutrition diagnosis above what they would ordinarily have been; also, the staff of physicians was slightly different during 1928 and 1929 than during 1930, 1931, and 1932. However, as previously stated, the individual examiners agree that their basis of diagnosis is the same, and this would seem to be more or less borne out by the fact that there is no startling difference between 1929 and 1930, which might be expected with a change in examiners.

Among the old cases returning to the Health Center regularly over a period of years are a large group from broken homes. Just what part poor heredity and what part the emotional factors play in these cases where malnutrition persists must undoubtedly be considered in the problem as a whole.

In addition to the age division as

CHART IV



DIAGNOSES OF MALNUTRITION AMONG COMMUNITY HEALTH CENTER PATIENTS—MAY TO OCTOBER, INCLUSIVE, FOR EACH YEAR (IN PERCENTAGES ACCORDING TO DIFFERENT AGE GROUPS)

presented in Chart IV, we also classified the groups according to sex, but found only a slight variation in that respect.

It seems important to emphasize the gradual upward trend over the entire period, rather than the percentage in any one group at any particular time. However, from the study it would seem that the more serious problem here definitely centers about the six to sixteen year old group. The rather erratic up-and-down curve in the seventeen to twenty year group is probably explained on the basis of the very small number of individuals in each subdivision in that particular age group; while in the group over twenty the fact that lack of adequate or proper diet does not develop symptoms as quickly as in children would affect the total picture and make it less spectacular, though probably just as serious in terms of future well-being.

Is there not some significance, and should we not be concerned, in such an increasing number of malnutrition diagnoses, and the possible causative factors? Is it due to physical defects and poor heredity, or has the depression, with its lowered standards of living—involving inadequate food budgets and overcrowded living conditions—been largely responsible? In either case can we lose sight of the possible effect of the emotional element as a cause in malnutrition? The insecurities and conflicts which arise when unemployment strikes at the very foundations of family life surely might conceivably be a very basic cause and one not so amenable to treatment.

From many sources we hear how the health of the nation has been main-

DIAGNOSES OF MALNUTRITION IN OLD CASES EXAMINED AT COMMUNITY HEALTH CENTER, MAY TO OCTOBER (INCLUSIVE) 1928—1929—1930—1931—1932.

Year	Total Number of Old Cases	NEW Malnutrition on OLD Cases		PERSISTING Malnutrition on OLD Cases	
		Individuals	Percentage	Individuals	Percentage
1928	1421	81	5.7	288	20.2
1929	1502	111	7.3	300	19.9
1930	1309	66	5.	296	22.6
1931	1253	75	5.9	319	25.4
1932	1145	127	11.1	320	27.9

tained at a high level, and this is most encouraging when one realizes the fundamental part the public health movement has had in bringing it about. Such proof, particularly at this time when budgets of health activities are being so drastically reduced, is especially needed and helpful and must not be minimized. However, in his presidential address before the American Public Health Association last October, Dr. Louis I. Dublin, in stressing the favorable health condition throughout the country, injected this thought: "I should, however, point out that our records throw no light on the mental health of the people, which must be anything but good. Nor can I avoid the fear that, should present conditions continue, we will soon become aware of the consequences of malnutrition of children in terms of disease and mortality records."

How serious the inroads upon the general health have been during this period of depression, and what eventually will be the cost to communities in the future, one can only speculate at this time. Health activities must continue, and more than ever before we must think and plan in terms of positive health. Mental hygiene, periodic health examinations, dental care, correction of physical defects, carefully planned and well-rounded food budgets, must all play a large part in our health programs if we are to safeguard our future generations of children.

The Physician's Prayer

ME also Thine eternal providence hath chosen to watch over the life and health of Thy creatures. I am about to begin the exercise of my profession.

Aid me, O All-kind One, in this great work, so that it may be of avail, for without Thine assistance nothing succeeds, not even the least.

May the love of my fellow-man and of my art ensoul me. May not thirst for gain nor craving for fame mingle in my service, for these are enemies of truth and charity, and they might mislead me, and keep me from doing what I ought to do for the weal of my fellowmen. . . .

If wiser men wish to teach and correct me, may I follow them and be grateful; for the compass of our art is large and wide. But if zealous fools upbraid me, then let the love of my art keep me strong, so that I may adhere to truth without regard to years and fame; for weakness and yielding would involve the pain and even the death of Thy creatures. . . .

Give me frugality beyond all, except in the great art. May never awaken in me the notion that I know enough! Oh give me strength and leisure and zeal to enlarge my knowledge, and to attain ever to more. Our art is great, and the mind of man presses forward for ever.—Extracts from The Physician's Prayer (Maimonides), The Canadian Medical Association Journal, January, 1931, page 2.

Seasonal Distribution of Whooping Cough for Periods of High and Low Incidence*

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THE present study undertakes to compare the seasonal distribution of whooping cough during periods of high and low incidence. The data utilized are those which have been described and evaluated in a previous paper,[1] namely, the reported monthly incidence of whooping cough for various states of the United States as published in *Public Health Reports*. The years 1922–1931, inclusive, are considered. A time series composed of the number of cases of whooping cough reported in successive months, adjusted throughout to a month of 31 days, was set up for each of 29 states. These adjusted time series constitute the basic data of this study.

The first problem is that of defining a period of high incidence and a period of low incidence. Each time series, running from October 1, 1922, to September 30, 1931, includes 9 epidemiological years. As a first attempt the year of maximum incidence was considered a high period. The results of an analysis carried out upon this basis were not satisfactory because of irregular fluctuations due apparently to small numbers. Greater stability was necessary in order to get reasonably smooth seasonal curves. To secure this, the 3 years of greatest incidence were considered a high period and the 3 years of lowest incidence a low period. In reality, the percentage monthly distribution of the combined cases for each 3-year period represents the seasonal distribution of a mean year of high and low prevalence respectively.

To obtain the percentage seasonal distribution for all states, two methods were tried. Method I involved the combination of the various individual time series. In other words, the 29 states were regarded as a morbidity registration area. The 3 years of highest incidence were picked out from the composite time series thus derived. Then the figures representing the corresponding monthly incidence for the selected years were added together. Method II involved (a) picking out the 3 years of highest incidence from the time series of an individual state first. Then (b) the figures representing the corresponding monthly incidence for the selected years were added together. The monthly figures thus obtained for each of 29 states were similarly added together to get a composite picture of distribution of cases by months for all states considered as a whole. Finally, in both methods the combined cases for each month were expressed as a per-

* Read before the Vital Statistics Section of the American Public Health Association at the Sixty-first Annual Meeting in Washington, D. C., October 25, 1932.

centage of the grand total for the high period. Percentage seasonal distributions of cases for a period of low incidence were obtained by applying these methods.

In using Method I it is probable, since the epidemic cycles of the various states do not vary together, that high and low years are combined and the effects of either averaged out. With Method II the calendar years selected for either period respectively are not the same for the various states. For all states, however, the years selected for each period do in a sense represent corresponding positions on their epidemic cycles.

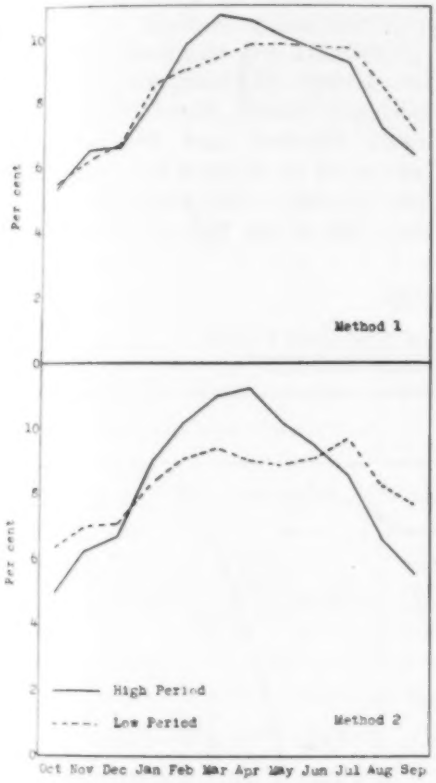
The results obtained by applying these methods are set forth in Table I and Graph I. A study of these indicates that during a high period, as here defined, the seasonal distribution of whooping cough tends to exhibit a greater amplitude and an earlier peak than during the low period. The question naturally arises as to whether this result may not be due to the weight exerted by a few large states. This possibility was investigated as follows: After applying the first two steps of

TABLE I

SEASONAL DISTRIBUTION OF WHOOPING COUGH
29 STATES COMBINED

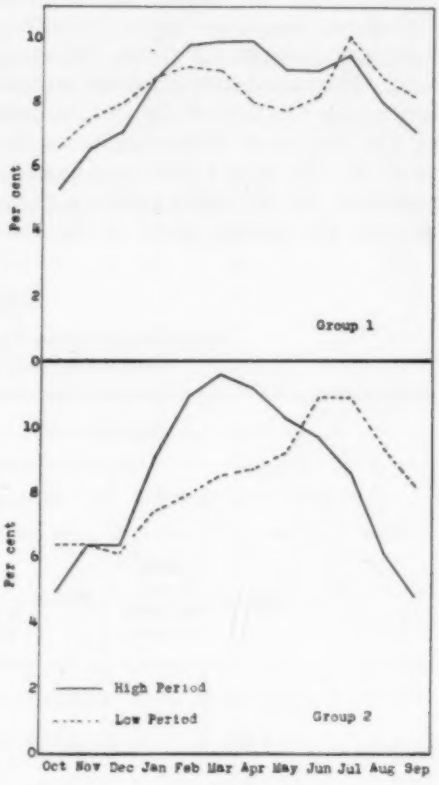
Month	High Period				Low Period			
	Method I		Method II		Method I		Method II	
	Cases	Per cent of total cases	Cases	Per cent of total cases	Cases	Per cent of total cases	Cases	Per cent of total cases
Oct.	25,906	5.4	29,070	5.0	22,228	5.5	20,240	6.4
Nov.	31,507	6.5	36,371	6.3	25,102	6.2	21,978	7.0
Dec.	31,929	6.6	38,593	6.7	26,972	6.7	22,437	7.1
Jan.	39,282	8.1	52,284	9.0	34,360	8.5	26,246	8.3
Feb.	47,379	9.8	58,890	10.2	36,299	9.0	28,476	9.1
Mar.	51,522	10.7	63,665	11.0	38,210	9.4	29,714	9.4
Apr.	50,761	10.5	65,148	11.2	39,863	9.8	28,182	9.0
May	47,963	10.0	59,278	10.2	39,690	9.8	27,871	8.9
June	46,309	9.6	55,333	9.5	39,466	9.7	28,777	9.1
July	44,312	9.2	50,033	8.6	39,337	9.7	30,576	9.7
Aug.	34,731	7.2	38,869	6.7	34,402	8.5	26,106	8.3
Sept.	30,921	6.4	32,630	5.6	29,117	7.2	24,289	7.7
Total	482,522	100.0	580,164	100.0	405,046	100.0	314,892	100.0

Method II (a and b) to the time series of a state, the combined cases for each month were expressed as a percentage of the grand total for the 3 years. The percentages thus obtained for a high



Graph I. Seasonal Distribution of Whooping Cough. 29 States Combined.

GRAPH I



Graph II. Seasonal Distribution of Whooping Cough. Method 2.

GRAPH II

and for a low period were plotted on a single diagram so that they could be directly compared. Such a diagram was prepared for each of the states.

The peak of the seasonal curve for the high period for Alabama, Arkansas, California, District of Columbia, Kansas, Massachusetts, Minnesota, Mississippi, Nebraska, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Washington, and West Virginia comes in March or April. The peak for Illinois, Maine, Michigan, Oregon, New York, and Vermont comes earlier than March; and the peak for Connecticut, Florida, Louisiana, Maryland, Missouri, North Dakota, and Wisconsin comes later than April. The group with an early peak includes northern states in the main, while the group with a late peak includes both northern and southern states. The shape of the seasonal curve for a high year does not seem to be associated with any definite geographical area. In a previous paper on the subject of whooping cough [1] dealing with a year of median incidence, a similar conclusion was reached.

For both high and low periods the minimum month was quite consistently October. In contrast to the relative constancy of the peak month of curves for the high periods and of the low month of curves for both periods, the peak month of curves for the low periods was found to vary a great deal. This was brought out in the following way. The states were classified according to the location of the peak month of the low-period curve relative to the peak of the high-period curve as a standard. On this basis and taking into account the general shape of the low-period curves, the states fell into one or another of 4 groups.

The combined figures for Pennsylvania, Ohio, New York, and Wisconsin (Group I), are presented in Table II and Graph II. The low-period curve is characterized by a late peak, a low amplitude and is bi-modal.

Table III and Graph II show that for Group II, comprising Kansas, Michigan, Illinois, Maryland, Alabama, North Carolina, and Tennessee, the low-period curve has a late peak but is not bi-modal. Its amplitude is less than that of the high-period curve.

TABLE II

SEASONAL DISTRIBUTION OF WHOOPING COUGH
FOUR STATES COMBINED—GROUP I

Month	High Period				Low Period			
	Method I		Method II		Method I		Method II	
	Cases	Per cent of total cases	Cases	Per cent of total cases	Cases	Per cent of total cases	Cases	Per cent of total cases
Oct.	9,564	5.3	10,003	5.3	8,960	6.6	8,360	6.6
Nov.	11,939	6.6	12,659	6.6	10,955	8.0	9,473	7.5
Dec.	12,864	7.1	13,447	7.1	11,209	8.2	10,093	8.0
Jan.	14,959	8.2	16,779	8.8	12,553	9.2	11,113	8.8
Feb.	17,542	9.7	18,661	9.8	13,436	9.8	11,519	9.1
Mar.	18,446	10.2	18,939	9.9	12,541	9.2	11,326	9.0
Apr.	18,018	9.9	18,965	9.9	11,162	8.2	10,127	8.0
May	16,437	9.1	17,236	9.0	11,079	8.1	9,850	7.8
June	15,962	8.8	17,165	9.0	10,914	8.0	10,355	8.2
July	17,599	9.7	18,140	9.5	12,198	8.9	12,649	10.0
Aug.	14,263	7.9	15,215	8.0	11,717	8.6	11,087	8.8
Sept.	13,612	7.5	13,569	7.1	9,843	7.2	10,366	8.2
Total	181,205	100.0	190,778	100.0	136,567	100.0	126,318	100.0

Group III (Table IV and Graph III) includes California, Minnesota, Massachusetts, Florida, Missouri, Mississippi, New Jersey, and Oregon. The peak of its low-period curve coincides in time with that of the high-period curve but its amplitude is less.

Group IV (Table V and Graph III) includes Washington, Connecticut, Arkansas, Louisiana, District of Columbia, North Dakota, West Virginia, Nebraska, Maine, and Vermont. The low-period curve is a bit irregular, due perhaps to small numbers, but its peak comes earlier than that of the high-period curve. Its amplitude is less.

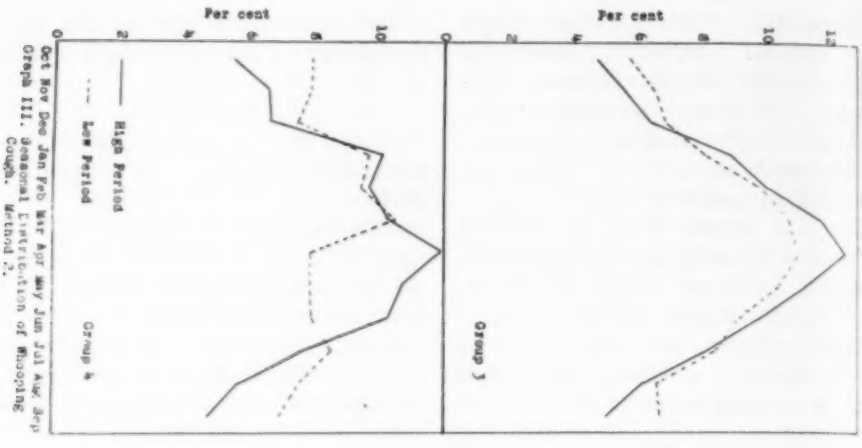
SUMMARY

During periods of low incidence the seasonal distribution of whooping cough exhibits less amplitude than during periods of high incidence. For 11 states (Groups I and II) the peak of the low-period seasonal curve is later than that for the high-period curve; for 8 states (Group III) the peaks of the 2 curves come at the same time, and for 10 states (Group IV) the peak of the

TABLE III

SEASONAL DISTRIBUTION OF WHOOPING COUGH
SEVEN STATES COMBINED—GROUP II

Month	High Period				Low Period			
	Method I		Method II		Method I		Method II	
	Cases	Per cent of total cases	Cases	Per cent of total cases	Cases	Per cent of total cases	Cases	Per cent of total cases
Oct.	6,375	4.5	7,924	4.9	5,957	5.8	5,310	6.4
Nov.	8,145	5.7	10,385	6.4	6,326	6.1	5,305	6.4
Dec.	7,904	5.5	10,374	6.4	6,170	6.0	5,049	6.1
Jan.	10,614	7.5	14,588	9.0	8,273	8.0	6,189	7.4
Feb.	13,733	9.7	17,566	10.9	8,714	8.4	6,636	7.9
Mar.	15,780	11.1	18,717	11.6	8,708	8.5	7,106	8.5
Apr.	16,456	11.6	18,052	11.2	9,504	9.2	7,257	8.7
May	15,156	10.7	16,577	10.3	10,117	9.8	7,688	9.2
June	15,446	10.9	15,725	9.7	11,472	11.1	9,138	10.9
July	14,067	9.9	13,820	8.6	11,035	10.7	9,081	10.9
Aug.	10,227	7.2	10,014	6.2	9,501	9.2	7,816	9.4
Sept.	8,131	5.7	7,764	4.8	7,449	7.2	6,836	8.2
Total	142,034	100.0	161,506	100.0	103,226	100.0	83,411	100.0


Per cent
Per cent
High Period
Low Period
Group 3
Group 4
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep
Graph III. Seasonal Distribution of Whooping Cough. Method 2.

GRAPH III

TABLE IV

SEASONAL DISTRIBUTION OF WHOOPING COUGH
EIGHT STATES COMBINED—GROUP III

Month	High Period				Low Period			
	Method I		Method II		Method I		Method II	
	Cases	Per cent of total cases	Cases	Per cent of total cases	Cases	Per cent of total cases	Cases	Per cent of total cases
Oct.	6,995	5.1	7,843	4.7	5,000	4.6	4,617	5.7
Nov.	8,635	6.4	9,382	5.6	5,927	5.5	5,247	6.5
Dec.	8,742	6.4	10,745	6.4	6,763	6.3	5,452	6.8
Jan.	11,680	8.6	14,916	8.9	8,839	8.2	6,535	8.1
Feb.	12,939	9.5	16,856	10.0	9,850	9.1	7,961	9.9
Mar.	14,877	11.0	19,877	11.8	11,766	10.9	8,691	10.8
Apr.	16,072	11.8	21,004	12.5	12,420	11.5	8,848	11.0
May	15,653	11.5	19,097	11.3	11,508	10.7	8,371	10.4
June	13,661	10.1	16,280	9.7	10,492	9.8	7,318	9.1
July	10,819	8.0	13,462	8.0	10,151	9.4	6,720	8.4
Aug.	8,492	6.3	10,229	6.1	8,051	7.5	5,337	6.6
Sept.	7,163	5.3	8,413	5.0	7,040	6.5	5,366	6.7
Total	135,728	100.0	168,104	100.0	107,807	100.0	80,463	100.0

TABLE V

SEASONAL DISTRIBUTION OF WHOOPING COUGH
TEN STATES COMBINED—GROUP IV

Month	High Period				Low Period			
	Method I		Method II		Method I		Method II	
	Cases	Per cent of total cases	Cases	Per cent of total cases	Cases	Per cent of total cases	Cases	Per cent of total cases
Oct.	2,319	4.9	3,300	5.5	2,142	5.9	1,953	7.9
Nov.	2,868	6.0	3,945	6.6	2,540	7.0	1,953	7.9
Dec.	3,070	6.4	4,027	6.7	2,766	7.6	1,843	7.5
Jan.	4,642	9.7	6,001	10.1	3,182	8.8	2,409	9.7
Feb.	4,638	9.7	5,807	9.7	3,437	9.5	2,360	9.5
Mar.	5,011	10.5	6,132	10.3	3,979	11.0	2,591	10.5
Apr.	5,349	11.2	7,127	11.9	3,769	10.4	1,950	7.9
May	4,607	9.7	6,368	10.7	3,537	9.8	1,962	7.9
June	4,494	9.4	6,163	10.3	3,421	9.4	1,966	8.0
July	4,282	9.0	4,611	7.7	2,968	8.2	2,126	8.6
Aug.	3,336	7.0	3,411	5.7	2,494	6.9	1,866	7.6
Sept.	3,095	6.5	2,884	4.8	2,007	5.5	1,721	7.0
Total	47,711	100.0	59,776	100.0	36,242	100.0	24,700	100.0

low-period curve comes earlier than that of the high-period curve. When the high-period and the low-period curves of the various states are classified according to the time at which their peaks occur, they do not fall into consistent geographical groups based upon climatic conditions.

Note: The author wishes to acknowledge his indebtedness to Huldah Bancroft for assistance in making arithmetical calculations and in drawing up the tables and graphs.

REFERENCE

1. Harmon, G. E. Seasonal Incidence of Whooping Cough in the United States. *A.J.P.H.*, 22:831 (Aug.), 1932.

The Fence or the Ambulance

JOHN N. HURTY, M.D.

'Twas a dangerous cliff, as they freely confessed,
Though to walk near its crest was so pleasant.
But over its terrible edge there had slipped
A duke and full many a peasant.
So the people said something would have to be done,
But their projects did not at all tally,
Some said, 'Put a fence 'round the edge of the cliff';
Some, 'An ambulance down in the valley.'

But the cry for the ambulance carried the day,
For it spread through the neighboring city;
A fence may be useful or not, it is true,
But each heart was brim full of pity
For those who slipped over that dangerous cliff;
And the dwellers in highway and valley
Gave pound or gave pence, not to put up a fence,
But an ambulance down in the valley.

'For the cliff is all right if you're careful,' they said,
'And if folks even slip or are dropping,
It isn't the slipping that hurts them so much
As the shock down below when they're stopping.'
Then an old sage remarked, 'It's a marvel to me
That people give far more attention
To repairing results than to stopping the cause,
When they'd much better aim at prevention.

'Let us stop at its source all this mischief,' cried he,
'Come, neighbors and friends, let us rally,
If the cliff we will fence we might almost dispense
With the ambulance down in the valley.'
'Oh, he's a fanatic,' the others rejoined.
'Dispense with the ambulance? Never!
He'd dispense with all charities, too, if he could;
But no! We'll protect them forever;
Aren't we picking folks up just as fast as they fall?
And shall this man dictate to us? Shall he?
Why should people of sense stop to put up a fence
While their ambulance works in the valley?'

But a sensible few who were practical, too,
Will not bear with such nonsense much longer,
They believe that prevention is better than cure
And their party will soon be the stronger.
Encourage them, then, with your purse, voice and pen,
And (while other philanthropists dally)
They will scorn all pretense and put up a stout fence
On the cliff that hangs over the valley.

Epidemiology of Syphilis and Gonorrhea*

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ONE year ago I had the privilege of presenting to you a record of some outbreaks of syphilis and gonorrhea which had come under my observation over a period of years. I wish now to present more recent investigations.

There is not too much education but too little actual epidemiology; not too much attention to treatment of cases known but too little prevention. There should be a real constructive program rather than just palliation. Just as with other communicable diseases we must have a case finding machinery—and when cases are found something must be done about them. The reason progress is so slow is because of our prudery and our false sense of modesty.

You know as well as I, that when we talk smallpox, typhoid or undulant fever, we talk it right out. We get the information. We collect the data, and we never ask ourselves questions about the propriety of our actions. When it comes to syphilis or gonorrhea we hush it and pass it by. We begin to qualify with ifs and ands and buts—we wonder if it is not too delicate a thing really and purposefully to investigate. Silly shame takes hold of us and we think silence is the best way out.

Dr. Ruedemann of our staff in New York State pointed out this salient difficulty in a talk on syphilis and gonorrhea when he quoted Bernard Shaw: "We live in an atmosphere of shame. We are ashamed of everything that is real about us, ashamed of ourselves, of our relatives, of our incomes, of our opinions, of our accents, of our experience, just as we are ashamed of our naked skins."

Another reason for failure in this field of public health endeavor is that we just do not do it, assuming that we cannot get the facts—so why bother very much?

May I present an actual experience to show precisely what I mean?

Questioning of a patient in a V. D. clinic:

State Nurse: "Where did you get your infection?"
Patient: "I won't tell you."
State Nurse: "But you have got to tell me."
Patient: "Well, if you must know, I got it from George ———."
Local Nurse: "You never told me that."
Patient: "You never asked me."

What public health official would have the supervision of a typhoid outbreak and content himself with lectures on the disease? He would investigate every case minutely; every contact would be subjected to careful scrutiny. The source of infection would be diligently sought and controlled. Why not the same procedure with syphilis and gonorrhea? Is it not now considered good public health and preventive medicine to investigate the single case

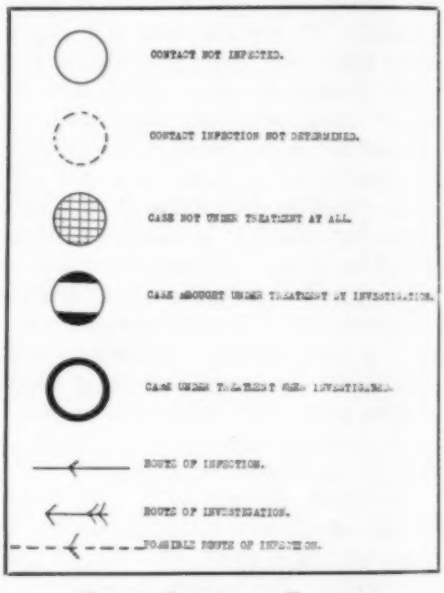
* Read before the Epidemiology Section of the American Public Health Association at the Sixty-first Annual Meeting in Washington, D. C., October 24, 1932.

of smallpox or typhoid? Do we wait for an epidemic? Don't we make quite a fuss about these single cases? Don't we look up contacts and keep them under observation, knowing full well that big epidemics from single cases grow? Is syphilis any different in any of its epidemiological implications, manifestations or behavior?

Any communicable disease is entitled to the amount of attention that its prevalence and harmfulness to the human race demands. I need not tell you what the magnitude of the problem is which syphilis and gonorrhea present. Estimates and figures vary, but these diseases are well up in the list of morbidity and mortality. We all know that they rank high as destroyers of human happiness. I wonder if they have not frustrated as many careers as some of the other diseases to which we give much more attention. Surely the misery and anxiety which they cause, taken with the financial cost for both early and late treatment and institutional care, make the problem of their abatement one of paramount importance to the tax payer.

Last spring I started out to see if as a routine measure I could pick up the trail and dig out of communities their problem so far as these diseases were concerned. I do not believe that the data and tracings submitted are anything unusual or peculiar. If these investigations had not been made probably no one would have known that the diseases existed in these communities; that is, not until some very serious happening occurred. I feel quite sure that the experience in my district is nothing unusual but can be duplicated in any given community from time to time. Of course, one can gloss over the situation by ignoring it, but it cannot be done forever. The bill has to be paid in the end and the longer payment is postponed the more difficult is the final and inevitable settlement.

The real investigator and epidemiologist finds his leads in many ways. Every human activity is of interest to him when he is on the hunt. When science is on the track of truth it scorns nothing, no matter how remote, that may have a bearing. The thing most desired in the investigator is the ability to know what is spurious and what is real information. Just a casual remark was the reason for the start of one of the investigations I am reporting in this paper.



KEY TO READING OF TRACINGS

The greatest source of information in getting leads to investigate, in my experience, is the public health nurse. She knows the community in which she works, and its people. She is one person who knows most of the troubles and difficulties of the families under her care, and she is the one who does most toward the solution of these problems. Physicians, if you are on friendly terms with them, will give leads that are of the greatest value. Looking up the card reports of clinics is profitable; they are worth careful scrutiny. Not

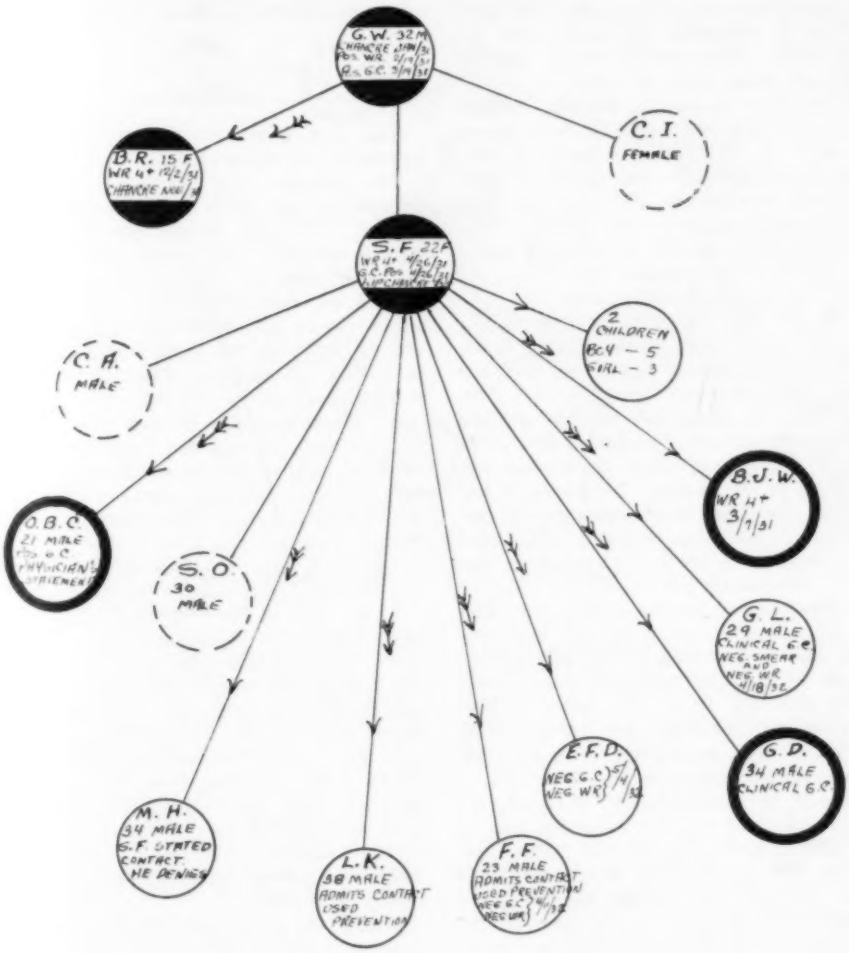
every one, of course, will give a lead that is worth further labor. Laboratory reports, too, should always be consulted—frequently they are the source of real clues and useful information.

The tracings herewith submitted are selected from 19 investigations recently made and chosen because it is thought that they point out some particular phase or type of investigation either from approach or methods. In 15 of these 19 investigations the source of infection was discovered.

TRACING I

This outbreak occurred in a village, population about 6,000, and a city of 20,000 population.

The investigation of these cases resulted from a discussion with the local nurse concerning the prevalence of syphilis in her community. She stated that she knew S. F. as a person who might be a source of infection.



TRACING I

EPIDEMIOLOGY OF SYPHILIS AND GONORRHEA—VILLAGE, 6,000, AND CITY, 20,000

She made the initial investigation which I followed up by further investigation and interviews with this person. The data acquired were turned over to a nurse and trained worker who continued the investigation.

Information indicated that G. W., a male in a nearby city, was the first case in this series. His chancre occurred sometime in January, 1931. The infection was transmitted to S. F., a female, and she had a lip chancre in the early part of February, 1931. She was given some treatment at that time but it was not continued. The investigation brought her under treatment again and she has adhered to it since.

The tracing indicates the contacts of S. F., some of whom developed gonorrhea. These cases were taken care of by a physician who admitted the diagnosis but would give no further data. This woman had a positive gonococcus smear April 26, 1931.

Of particular interest is the fact that E. F. D., a contact, was found to have moved to Newark, N. J. This was taken up with the health commissioner, Dr. Craster, of that city and he reported that the man had "been located, examined and found negative. This was fortunate for him for he admitted having been exposed to the disease. Thank you for advising us of this possible menace."

G. W. was also the source of infection for B. R., 15 years of age, female, residing in the city, who had a chancre November, 1931, and positive Wassermann December 2, 1931. When the nurse discovered this girl she had a temperature of 103° F., which followed the birth of a live child which her mother had burned up in the furnace. No physician had been in attendance and apparently a premature birth had been produced. The nurse felt it her duty to obtain a physician to care for this unfortunate girl.

In attempting to do this a very interesting sidelight on syphilis was obtained. The nurse called upon a doctor and asked him to take the case. He refused, saying that he did not care for that kind of case. He, however, plied the nurse with questions and continued the conversation with her saying, "You are going at this syphilis business in the wrong way—you should try to prevent it." Not long before, he had had a letter from the dean of the college attended by his son stating that the boy had syphilis and was under treatment. The girl with whom the boy kept company had been sick for 2 months, but syphilis in this family was a thing not to be thought of—no Wassermann had been taken. The doctor told the nurse that he did not know what to do, but finally he went to the girl's physician and stated the facts. A Wassermann was then taken which was 4-plus. Treatment was started and the girl promptly began to get well. Syphilis is no respecter of persons. Every once in a while, every doctor should read Osler's dictum, "Know syphilis in all its manifestations and all things else clinical will be added unto you."

This was the only instance in this series in which the police power was used. G. W. was taken in by the police, told that unless he continued his treatment he would be put under arrest, and the facts of his relations with B. R. were given to the district attorney of the county.

While the most of these contacts occurred in the village of 6,000 population, the first 3 cases, B. R., G. W., and C. I., were in an adjoining community of about 20,000 population.

TRACING II

This is a gonorrheal outbreak in a rural population of about 100.

The situation in this community was brought to light when I was discussing with persons in another county the situation as regards the control of syphilis and gonorrhea. We were then investigating an outbreak of syphilis in that community. The remark which caused this investigation was: "We are no worse in this county than they are in ———— county. There is one community there where everyone has it." Inquiry determined the location of this community and investigation with the health officer brought to our knowledge the situation here detailed. Later a trained worker from the department, Julia MacPhillips, completed the investigation. She is the worker employed on most of these investigations. It is upon her data that the tracing is based.

L. M. came to the home of P. H., a well-to-do farmer, as his housekeeper. Within a short time this man was required to go to the hospital due to a severe urethritis which was found to be gonorrheal. Interviews with the 18-year old housekeeper brought out the story that she had received her infection from C. M. before she had come to her present location, while living in another community some 22 miles distant. She gave the names of the contacts to the nurse, who was able to see that she got to her physician who continued treatment.

Mrs. S. C., whose husband S. C. developed gonorrhea with a positive smear, was thought by the investigator to have received her infection from P. F., an old gonorrheaic. The infection may have come from P. H., because of a happening which occurred in the fall of

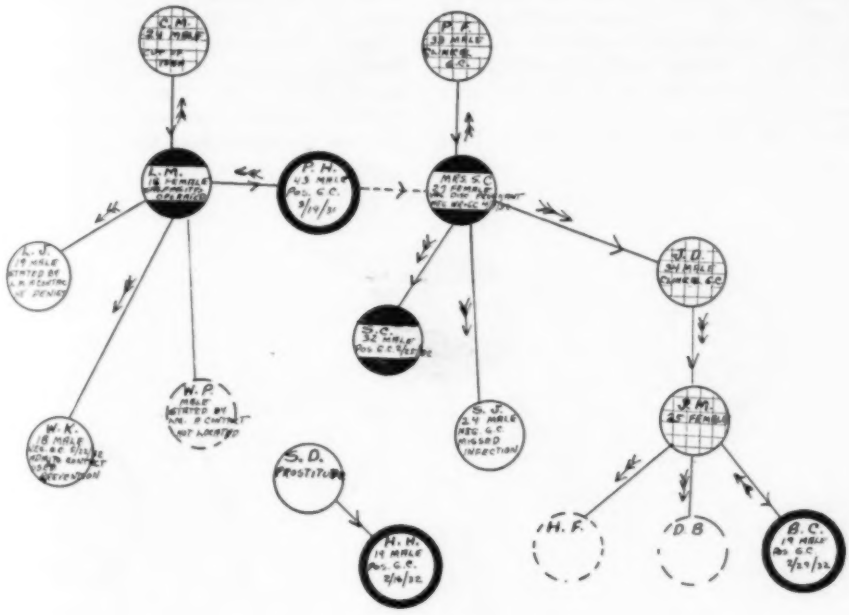
1931. It appears that Mrs. S. C. had carried on some negotiations with P. H. which had been discovered by her husband. He became very much incensed but later when the depression became more acute, suggested to his wife that she reëstablish relations with P. H. and "shake him down for some coin." I am inclined to think this was the cause of the infection.

J. D. received his infection from Mrs. S. C. and apparently transmitted it to his wife, J. M. Neither of these persons was under treatment except what they gave themselves. Mrs. J. M., in turn, transmitted the infection to B. C., who had a positive smear.

At the same time, another case, H. H., age 19, appeared, which to all indications had nothing to do with the epidemic. His story shows that he had gone to a nearby city and 3 days after his visit had gonorrhea with a positive smear. From the evidence there can be no question that this case was an infection got in the city from a prostitute.

In the case of the housekeeper for P. H. there seemed to be some difficulty on the part of his sister to understand that the investigation was solely for the purpose of controlling gonorrhea. Apparently she thought that there was an attempt being made to get her brother into trouble because of the hired girl being a minor. At any rate, P. H. was married to L. M., apparently at the insistence of his sister.

In this tracing there is evidence that gonorrhea was introduced into this community on two occasions—by L. M., which spread to others, and by H. H., in which there is no evidence of further infection. I believe that the investigation was potent in stopping further spread. The mere fact that the inquiry was being conducted acted as a deterrent.



TRACING II

EPIDEMIOLOGY OF RURAL GONORRHEA

TRACING III

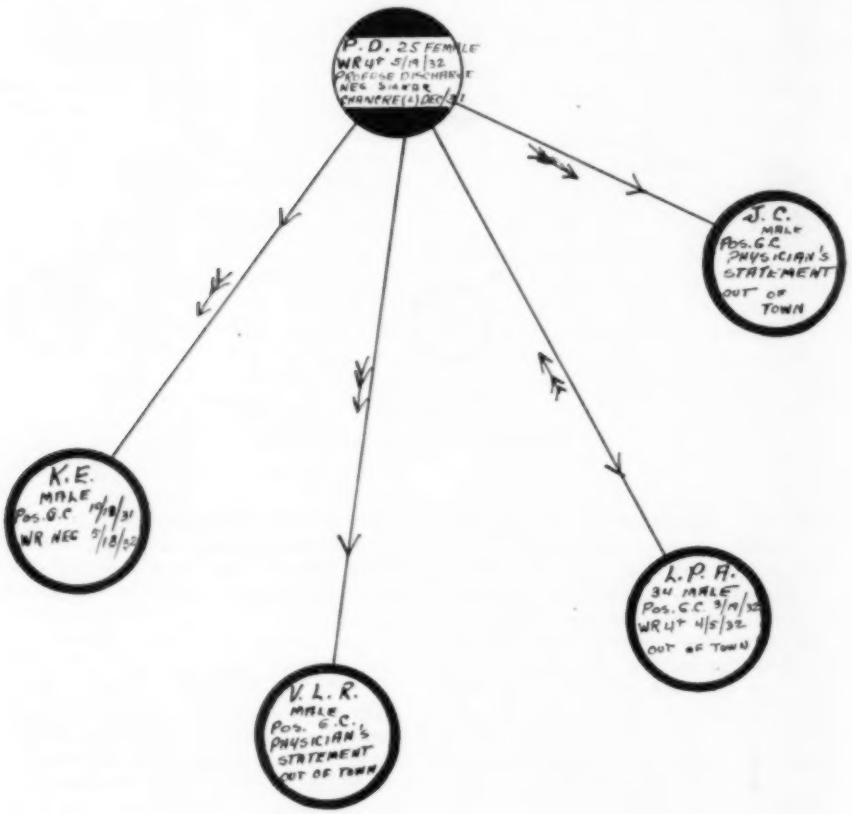
This series of cases was found by the nurse, a trained worker, after Dr. B. had told her that one of his patients had acquired disease out of town. The doctor did not want to give the name of the patient. The only information was that the girl who was the source of the infection worked in a restaurant in a nearby city; that the girl's nickname was "Peggy," and that she had a sister who

probably worked in a factory in the same city.

With this information the nurse located P. D., age 25, and found out that she had gone to a clinic in the city in September, 1931, had requested a Wassermann, and had returned several times to get a copy of the report, which was negative. Her desire to have this report was stated to be that some man had accused her of giving him a disease and she wanted to prove that she was all right. The nurse then called at the girl's home and on the family, which is considered a very respectable one. Arrangements were made by the nurse to have a personal interview with this girl. She gave the names of 3 other persons, all of whom were checked up and found to be under the care of the clinic or a private physician.

While this girl was never found to have a positive smear, she had infected L. P. A. with both gonorrhea and syphilis. This was the only possible source of infection he had had. When he presented himself first the doctor considered that he had just a gonorrheal infection which seemed to persist, and at a later date the patient showed a secondary syphilitic rash and it was not until this time that a Wassermann was taken. This points out the necessity of taking a Wassermann on all patients with a venereal history. The doctor thinks that probably his patient had an intra-urethral chancre which he missed at the time of his first examination.

There is a history that the girl, P. D., at Christmas, 1931, had a sore in the vagina which lasted some time and which was probably a primary chancre, although at that time she attributed it to the use of a douche



TRACING III

EPIDEMIOLOGY OF SYPHILIS—CITY, POPULATION 20,000

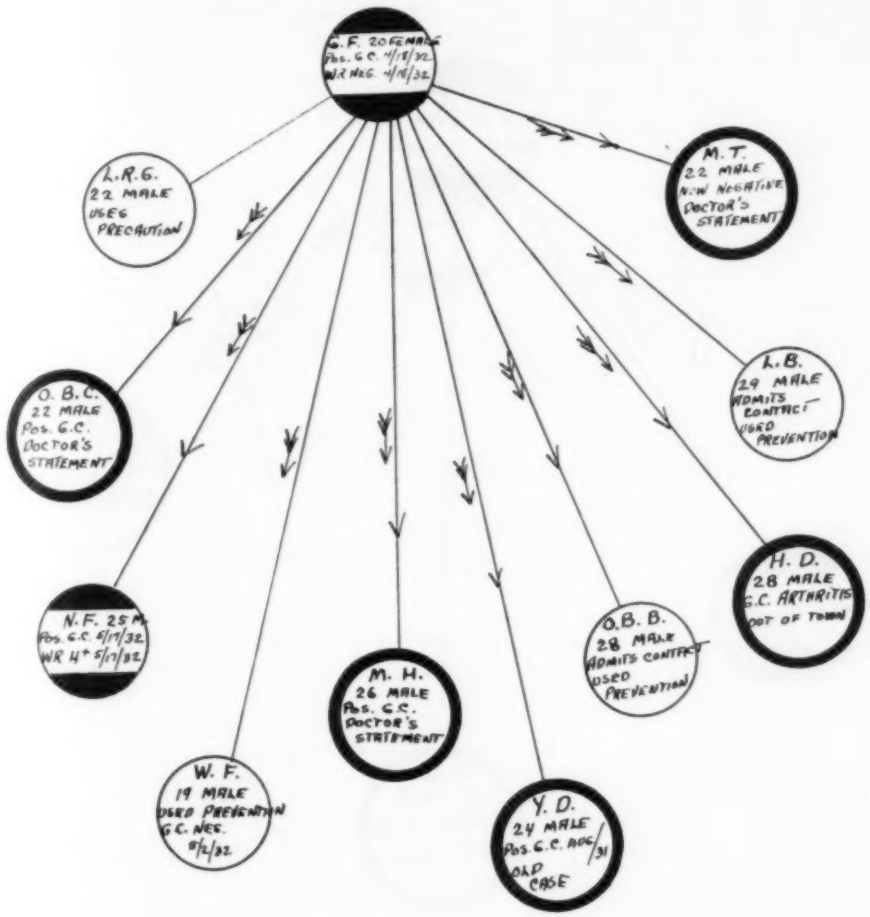
which was too hot. She has been put under treatment which she is faithfully following in the clinic in the city.

The important lessons of this investigation are: (1) Always take a Wassermann. (2) That physicians will refer their private cases for investigation if they have confidence in the worker.

TRACING IV

This series of cases occurred in a village of approximately 6,000 population. The girl who was the source of infection was discovered because in making another investigation the nurse heard her name mentioned several times, and local inquiry brought out the fact that she was promiscuous. She had come in June, 1931, from a village some 30 miles distant from her present abode. She stated that she has been infected for 2 years.

The nurse pointed out to her the danger she was in the community, and stated that her only object in coming to see her was to be of service and to get her under treatment. She gave complete confidence to the nurse and informed her of the contacts which are noted. Arrangements were made by the nurse to have her treated by the private physician of her choice and at her own expense since she was earning a good salary. She has conscientiously followed her treatment and so



TRACING IV

EPIDEMIOLOGY OF GONORRHEA—VILLAGE, 6,000

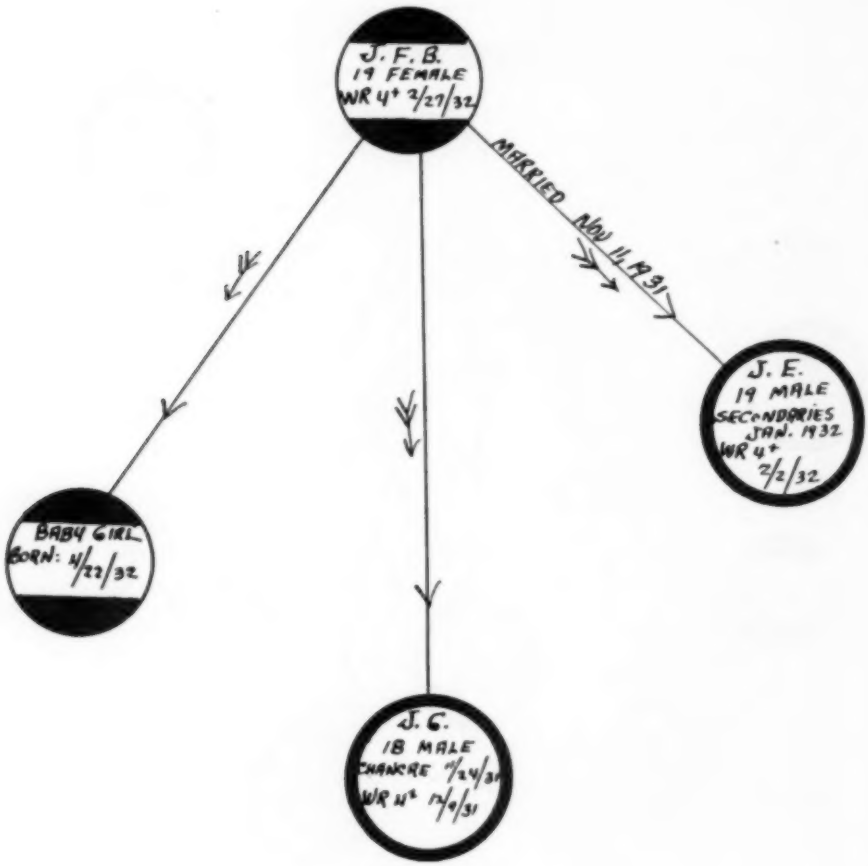
far as we have been able to ascertain has infected no one since.

TRACING V

This tracing represents family syphilis in a group of people living 3 miles off the State Road in a rural section. The source of infection of these cases came from out of the state in March, 1931, to live with her mother who was the housekeeper in the family.

This girl had contact with J. G., who developed a chancre November 24, 1931, and a Wassermann taken December 9, 1931, was positive. On November 11, 1931, she married a cousin of J. G., who developed secondaries in January, 1932, and had a positive Wassermann February 2, 1932. Primary chancre was not noted in this case. The girl is full-blooded white while the two men are each quarter-colored.

These men both reported to a doctor in a nearby village when their trouble began and have been under treatment by him. This doctor worked out the epidemiology involved and suggested that the girl come in for treatment, but this she failed to do. The next known of the situation was when the county nurse obtained information which led her to make a prenatal visit on this girl. She made inquiries which aroused her suspicions and consulted with me; I then checked up with the doctor and found out the story detailed here. The prospective mother was promptly put under treatment but not sufficiently early to prevent syphilis in her baby,



TRACING V

EPIDEMIOLOGY OF FAMILY SYPHILIS—RURAL

born April 2, 1932. This baby had snuffles, was puny, marasmic, had cranio-tabes and also a peculiar rash which looked like sudamina. It was promptly put under treatment. The skin cleared up, the snuffles ceased, and the marasmic condition improved until the child became the picture of health.

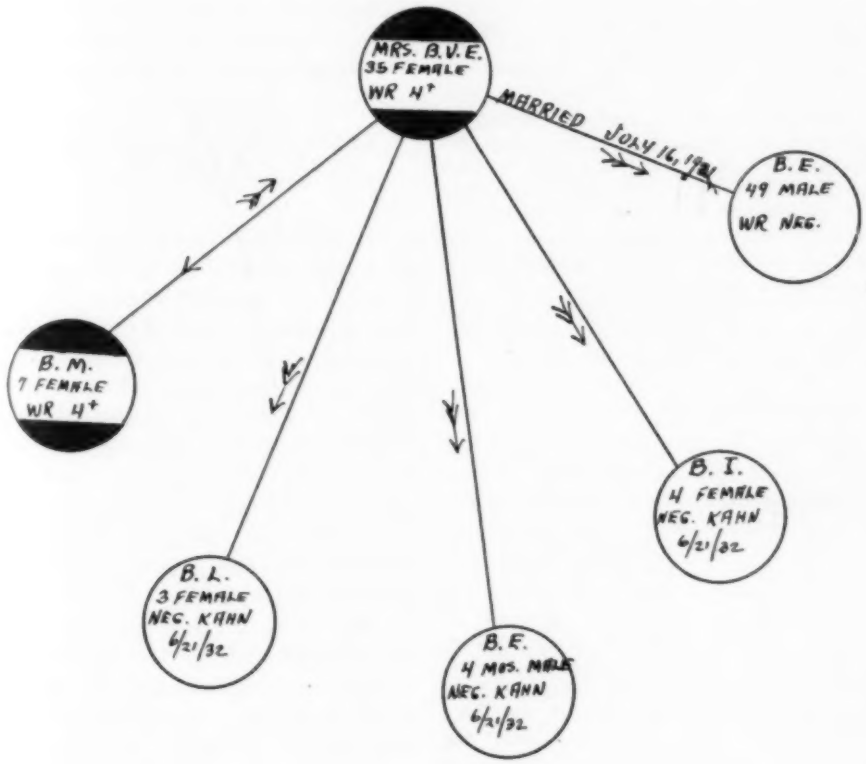
This series of cases points out one of the difficulties which private physicians feel—that they do not think they can go ahead and make investigations looking to get contacts under treatment lest they be accused of having a commercial interest. It seems to me also to prove the necessity for the investigation of cases of syphilis. The probabilities are that if this nurse had not found the girl as a prenatal case she would have continued without treatment; the baby would have had no treatment, and would have died. Further, it shows again that syphilis is carried from one community to another; in this instance from one state to another.

TRACING VI

The history of this family is reported because it shows another method in which one can come upon the trail of syphilis.

B. M., age 7, was reported from a village school as suffering with alleged pink eye. The nurse became suspicious and reported the matter to the county nurse, who with the school nurse took the case to the local family physician who referred it to an eye man in a distant city. This specialist made the diagnosis of interstitial keratitis, had a Wassermann taken, which was 4-plus, and then an investigation was begun of the family. Mrs. B. V. E., mother of the child, was found to have a 4-plus Wassermann. Her husband, 49, was negative, as were her 3 children, ages 3 and 4 years, and 4 months, respectively.

There is a history that Mrs. B. V. E.'s mother was syphilitic, and the contention of the attending physician was that the syphilis



TRACING VI

EPIDEMIOLOGY OF FAMILY SYPHILIS—VILLAGE, 5,000

was congenital in Mrs. B. V. E.; also in B. M. Investigation was made of the grandparents on the mother's side. The grandmother, age 81, showed a negative Wassermann on two tests. There had been 12 children in her family. All were alive and well except 3 who died in adult life, the cause of death being not definitely known in any. The grandfather, age 84, 3 years before, had a fractured hip, at which time he went to a hospital, but no Wassermann was taken. A year later he went to another hospital in the same city for a prostatectomy. There is no record that a Wassermann was done at this time.

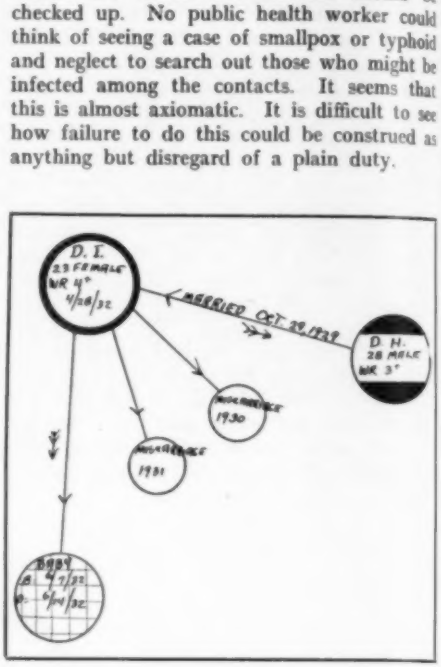
Mrs. B. V. E. had no previous knowledge of her syphilitic infection. She denied any extra-marital or pre-marital intercourse that might account for her disease. She was married at 25, and it was 6 years before her first child was born. She had wanted a large family and was disturbed because she did not become pregnant. This sent her to numbers of physicians to see what the trouble was, none of whom took blood for a Wassermann test. She had no miscarriages, no sores on her body, or rash of any kind.

Here are 3 persons in this family who came under medical treatment and a Wassermann was never done on any until we began our investigation. If, in the case of the mother, a Wassermann had been done by one of the physicians whom she had consulted because she was not having babies, she could have been treated and the necessity of treating her present 7 year old daughter averted. If we could get physicians into the habit of taking Wassermanns we would unquestionably discover a lot of syphilis and save a lot of money which has to be expended on treatment for syphilis that could be easily prevented.

TRACING VII

This tracing is submitted because the original case was found in a routine prenatal clinic, due to the fact that a Wassermann was taken on the mother who had had two miscarriages. D. I. was 4-plus on April 28, 1932. She was given 3 anti-syphilitic treatments before her baby was born, June 7, 1932, but the child died a week later, apparently of syphilis. Because of the Wassermann taken in the prenatal clinic, there was no investigation of the husband until I had stumbled upon the report seeking to work out some studies in the epidemiology of syphilis, and it was only then that he, B. H., was found to have a 3-plus Wassermann. Both are now under treatment.

It is apparent that where positive Wassermanns are found the contacts should be checked up. No public health worker could think of seeing a case of smallpox or typhoid and neglect to search out those who might be infected among the contacts. It seems that this is almost axiomatic. It is difficult to see how failure to do this could be construed as anything but disregard of a plain duty.



TRACING VII

EPIDEMIOLOGY OF FAMILY SYPHILIS—VILLAGE, 800

It would be interesting to tell you of the cases of syphilis which we have found in some outbreaks of smallpox. I saw one where a school bus driver had pustular smallpox and, in between his smallpox lesions, the papular lesions of syphilis. This man was traced by his smallpox and the children under his care had all been vaccinated in time to prevent infection. Back-tracking this man to the nearest genitourinary specialist showed that he also had a positive Wassermann.

There were 3 other cases of syphilis in smallpox patients, one of which was a mistaken diagnosis and is a most intriguing story. My Montreal paper was sent to our clinic directors. One replied that he thought the epidemiology of syphilis a very questionable thing. It seems that a patient was sent

to this doubting Thomas, who was also health officer, by another physician, with a diagnosis of smallpox. He noted the lesions and found a sore throat. He became suspicious of syphilis, took a Wassermann which was 4-plus, and then this health officer investigated the family and found that the husband and children were free from syphilis, but that about 8 weeks before a boarder had come to the house. This boarder had been to a physician and been treated for a venereal disease. He then escaped to parts unknown and has just been located, but no Wassermann has been taken. This health officer is now conducting investigations into the source and interviewing contacts of both syphilis and gonorrhea.

The question of who is to do the field work in the epidemiology of syphilis and gonorrhea brings up the discussion of the qualifications required in such a person. There are certain people who are just not fitted to make any sort of epidemiological investigation. They work hard but they do not get anywhere. They have not the knack of getting to the thing that is pertinent and do not know what the really pertinent thing is—always finding the irrelevant and immaterial. What we need is a trained worker in epidemiological methods in syphilis and gonorrhea. This particularly trained worker should be the teacher of the general all-purpose public health nurse. The place to learn and teach this is in the field. At present in New York State all of our group instruction to the local nurses for this year is on gonorrhea and syphilis, and due attention will be paid to the epidemiology of these diseases.

My own idea is that the will-to-do, plus a certain amount of self-confidence in the investigator that he can do it, is most necessary. I have had one experience with a nurse who did not see how she could possibly ask these questions and do this work. She was told that she would not get anywhere with a negative approach and afterward became convinced that she could do it, and then went out and did one of the best pieces of work I have seen.

The best "thrillers" have by no means been selected from the number of investigations made. There is one investigation in which a divorce occurred and in which the infected woman gave the testimony on which it was granted. The husband in the case refused to give blood for a Wassermann. I reviewed the testimony and then saw the Supreme Court Justice who conducted the suit. I showed him my data which involved the infection of some 10 persons. I told him the husband had refused a specimen to which the judge replied: "Doctor, you are entitled to take blood from ————. If he refuses tell him that I shall cite him for contempt of court."

No definite attempt is made here to arrive at any conclusions. The items which might be stated as conclusions are so apparent that to recite them seems unnecessary. The attempt made in this paper is to point out that the epidemiology of syphilis and gonorrhea is possible and can be done.

NOTE: See *Discussion* of this article on page 808.

DISCUSSION

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THE paper which Dr. Munson read at Montreal last year, besides creating something of a sensation drew a challenge from some of the group of specialists in the field of venereal diseases and social hygiene. Among other things they pointed out that most or all of the epidemics Dr. Munson cited had occurred several years before.

The claim was made that conditions are different now and that as much follow-up is being done as is consistent with the social factors peculiar to the venereal diseases.

Dr. Munson has answered these criticisms by investigating recent cases and in doing so has demonstrated how inadequate the usual follow-up is. That every one of his investigations has proved fruitful or worth the time spent upon it cannot be claimed—certainly not in terms of immediate results. But the pioneer often fails to pick the shortest and easiest road to his objective. It is to be expected that those who follow will make improvements or find a better way. And so in the epidemiological method. The unproductive lines can be discarded. It seems to me inadvisable, for example, to pursue very far the illicit sex relations of persons of the underworld.

On the other hand, merely to examine the family contacts of venereal cases is to fall far short of what is not only feasible but a necessity, if the ill effects of these diseases are to be materially reduced. A dictum which I think should be burned into the mind of every health officer is that investigation is a necessity in the control of communicable diseases; that there is no control without investigation.

The investigation necessarily must be adapted to the particular diseases. The investigation of typhoid follows a different line from that of smallpox. It must also be adapted to the purpose we have in view. In smallpox the emphasis is on prevention, in measles on amelioration of the effects.

One of the functions of epidemiology as I conceive it, is not merely to find out things about the disease, but to devise methods of investigation and means of applying the knowledge.

The great value of Dr. Munson's paper is in its putting the venereal diseases before us as *communicable diseases* and its straightforward attempt to hew a path which others may follow and probably improve as we gain experience and wisdom.

Practical Uses of Diphtheria Immunization Records*

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RECORD keeping is probably the pet aversion of the physician. Some at least, carry it with them to the health department when they become health officers. Other so-called "practical" people object to making, collecting, and tabulating records on the theory that it wastes their resources.

Referring to records of immunization one finds these "practical" people saying that "records do not get children immunized"; that "I can use the people needed to keep records to get more children immunized." Both are mistaken. Records do help to get children immunized and they can do more effective work than could be purchased for the same cost in direct action.

In the first place it is needful to know who among a group of children have been immunized in order to save the efforts of canvassers. Canvassing has proved the most effective method in securing immunizations, but it is expensive. The possession and *use* of properly kept records will save their cost of this item alone. Even if unpaid volunteers are used, as sometimes in a "drive," the cost may be saved. Neither volunteer nor professional relishes visiting households that have already been immunized and serious damage to morale may result from failure to sort out the immunes.

The record of the individual is also useful in determining whether a reported case of diphtheria received his full course of injections at the time and place stated. In a number of instances when this claim has been made it has been possible to show that the time was much less remote than stated; that they had less than the full course of injections; or that they were not there at all. The record is also of use as proof of the individual's having received the required series of injections. These are demanded by not a few summer camps and playgrounds.

Records help to get children immunized in another way. The tabulation of the records tells the health officer, and enables him to tell the community authoritatively, where it stands —how much has been accomplished and how much remains to be done. It substitutes a definite figure for a wishful guess.

Some years ago, following an "intensive drive" along the lines then necessary, the leader of this drive announced that 90 per cent of the children of the city had been immunized. Although there had been enough noise and confusion seemingly to immunize the entire county, a skeptical state health department questioned the figures and asked for the records. After eliminating duplicates and correcting

* Read before the Epidemiological Section of the American Public Health Association, at the Sixty-first Annual Meeting in Washington, D. C., October 26, 1932.

errors it was found they had achieved the very creditable figures of 35 per cent of the under-5 age group, 65 per cent of those 5–9 years, and a little over 30 per cent of the 10–14 group. It was a very successful "campaign" and seemingly it stopped diphtheria, but a hard boiled tabulation of their records showed there was still work to be done.

The officials of another city making large claims for immunization work were becoming skeptical of its value. According to them they had immunized some 30 to 40 per cent of the younger children and nearly 100 per cent of the older ones. Had they kept up their pace and their method of calculation it would have been a matter of only a few years until they could have shown over 100 per cent in the first group and 200–300 per cent in the second. They overlooked the fact that children *do* get older.

I am aware of the claim made by some that they can "make a pretty close estimate" from the amount of T-A they give out. Toxin-antitoxin and toxoid are furnished to physicians free of charge in New York State, the result being that unquestionably some of it is wasted. While there are probably few who inject the entire contents of a 5 c.c. bottle for each shot as one elderly gentleman was found to be doing, yet there are not a few who use but 1 dose out of a bottle in their private practice. Not having many to inject at the same time they prefer to get a new bottle for each injection rather than risk contamination. At clinics nobody ever keeps count of the bottles that are tipped over, those that break, the needles that clog and suddenly let go with an attendant shower under the ministrations of an enthusiastic nurse or physician. Furthermore this method fails to tell us how many individuals got the injections or how many got a complete series of injections. I have no idea what the actual ratio is of c.c.'s of T-A or toxoid per person receiving a complete series.

Under the stimulus of actual figures health officers with a sense of responsibility strive to better a poor showing; those with a good one try to maintain it, if they cannot improve it. Records get children immunized in that way. Immunization figures enable us also to determine the effectiveness of the various methods employed in getting children immunized. By cutting out useless procedures we have that much more time for useful ones.

The drive I have previously mentioned as having been led by an optimistic estimator, reached its climax after 3 months of publicity. Talks to organizations and new articles were spread over this period with a not very well organized canvass near its close. The result was good. A month later the health officer of another city organized a campaign with 100 volunteer canvassers 16 days before the first clinic was to be held. His newspaper publicity started at the same time. The first clinic was held in the worst blizzard of the winter but despite this handicap the attendance strained the capacity of the arrangements. The results as shown by the records were somewhat better than the longer, more elaborate and more expensive campaign in the first city.

By tabulating and studying the results with varying educational methods, in varying quantities we were soon able to determine that the canvass and a public clinic were *the essential* elements in a drive; that elaborate newspaper propaganda got very little return without them; that school drives got school children but very few younger children; that dog teams, posters, lectures, letters, postcards, merely served as a background; that it took a face-to-face talk and the existence of a free clinic to get children to a clinic or the family doctor in appreciable numbers. The records

also showed that doctors immunized more children during an active drive with a public clinic being operated than they did in all the rest of the year; that the mass movement of children to clinics gave the impetus needed to overcome the inertia of procrastinating parents.

Records will also show which canvassers are successful and which unsuccessful in securing immunizations. Sometimes poor ones can be taught, sometimes they can be enthused into becoming good ones. If they cannot be, they may be good at something else.

The foregoing comments refer to the immediate uses of records. But there is a more remote and I believe a more important use. A year ago I read a paper before the Health Officers Section wherein I advanced the following hypothesis:

1. The attainment of a high degree of herd immunity among children 5–9 and 10–14, as evidenced by the injection of 3 doses of toxin-antitoxin in 50 per cent or more of the members of these groups, produces no definite effect on the diphtheria incidence in that community. Diphtheria if prevalent continues prevalent for a considerable period and declines gradually as it does when active immunization is not used. If not prevalent an outbreak of considerable proportions may arise.

2. However, when the immunization of approximately 30 per cent or more of the children under 5 years is superimposed, there is an immediate definite decline in the current prevalence, and if the community be free from the disease or if its prevalence be low, an outbreak is very unlikely to occur. In other words, there is a critical point in the under-5 age group which must be attained and sustained in order to affect the diphtheria rate favorably.

It should be clearly understood that the foregoing is a mere hypothesis—important if true. It is based on a limited number of observations within a restricted area. It requires further observations of a similar nature from a wider area. Such observations, to be of value, must be based on knowledge of where the community started from as well as where it ended.

To determine the starting point means that records of immunization must be kept by the health department as a routine. Their everyday uses justify this. They should be classified by age, perhaps by certain areas, at regular intervals, and when unusual circumstances arise. Starting to collect immunization records after an epidemic has commenced is futile unless it is known that there were none to collect.

At least once each year the immunes must be re-classified by age. As previously remarked, children do get older. A record that stood at 100 per cent of the under-5 age group January 1, 1927, would have been exactly zero per cent January 1, 1932, if no immunizations had been done in the meantime. The important thing to the health officer is not where he stood a few years ago, but where he stands now. Reclassifying the ages is not difficult if a system be followed. That used by the New York State Health Department is described in the article previously referred to and in the *Rural Appraisal Form* for 1932. I know of none that is simpler.

While it is purposed to continue observations in New York State as opportunity arises, yet diphtheria outbreaks have become so infrequent that unless decided change occurs it will be many years before sufficient evidence accumulates to provide an ample test. There has not been what might be termed a "satisfactory" outbreak in the state since a year ago last winter and no area of high endemic prevalence for over 2 years. Of necessity, therefore, if this hypothesis is to be further tested in the near future, it seems it will have to be done elsewhere than in New York.

The Committee on Administrative Practice of this Association is interested in obtaining further data that will tend

either to support or refute this hypothesis. It is hoped that every county and city health department in the country will secure and maintain such records as will enable it to determine where it stands relative to diphtheria immunizations now and at any time in the future. If diphtheria becomes prevalent there should be available not only a record of the cases, but a record by age of the children who have had a full series of toxoid or toxin-antitoxin.

A health officer's duty is first of all to his community—as a community. He must consider his people and their diseases in the mass and be concerned with the individual primarily as he affects the mass.

If the injection of 80 per cent or even 100 per cent of the older children fails to stop diphtheria in the community, the project has failed. It is not important that he has stopped the disease among school children; it is not important that every one of those injected has been Schick-tested and found negative. But it is important whether or not diphtheria continues to take its toll among the unprotected.

If injecting 30 per cent or more of the under-5 age group will stop diphtheria among all groups, that is the essential thing to do. If it is not true, we should find it out without delay. If it is only partly true we should find out what the modifying factors are. If it is true we should know it with certainty.

We will not be able to determine the point until we have available for study reasonably complete and reasonably accurate records of immunization.

Inaugural Address*

J. L. POMEROY, M.D., F.A.P.H.A.

Los Angeles County Health Officer; President, Western Branch, American Public Health Association

Mr. President, Honored Guests, Ladies and Gentlemen:

IT is indeed a great honor to be elected president of the lusty adolescent known as the Western Branch of our great American Public Health Association. It gives me great pleasure to accept this honor and I trust that I may be able to fulfil the obligations resting upon me in a satisfactory manner. Certainly it is important that those of us engaged in public health work in the western section of the North American Continent should have opportunity for exchange of views by coming together in an annual convention. Through such intercourse and exchange of ideas come much good and I sincerely hope that the future will show the steady growth in our development. The sympathetic and helpful attitude of the officers of our parent organization is stimulating and encouraging.

In reflecting upon the various points of view and attitudes of mind concerning our field of work an interesting if somewhat fantastic interpretation has occurred to me. During recent years I have been wont to look upon ourselves as workers on the great highways of life. Road building you know is an ancient and honorable profession. The old Roman Road of England is pointed to today with great interest. Road building requires a number of operations. The selection of a proper route, the planning of the highway, the drawing of specifications and finally actual building operations. It is important that along the highway there shall be signs directing the traveler and warnings against dangerous detours. Maintenance and repair are also of great importance; and perhaps most important of all came into being the "bridge builder."

The great field of public health has many similar analogies to the profession of road building. There must be those who go ahead and blaze the trail, charting the way in the great unknown. Some work in the field of research studying better methods and solving the vexing problem of frequent defeats and analyzing our failures. Some are engaged in health education and place the sign boards along the highway of life. Many are engaged in what might be called maintenance and repair work. It is indeed true that there are many dangerous detours and bypaths tended by quacks, pretenders and cultists of many kinds, constantly seeking to lead the public from the safe and sane highway.

But whether we are engaged in the major work of planning or whether our walks are in the humbler paths, each group of workers in the field of public health plays a most important function not only in providing safe and sane highways but in keeping these roads clear of danger and swift of travel.

These thoughts have been suggested by an anonymous poem as follows:

* Read before the Fourth Annual Meeting of the Western Branch of the American Public Health Association, Pasadena, Calif., May 30, 1933.

THE BRIDGE BUILDER

An old man, traveling a lone highway,
Came at the evening, cold and gray,
To a chasm vast and deep and wide.
The old man crossed in the twilight dim,
The sullen stream had no fear for him;
But he turned when safe on the other side,
And built a bridge to span the tide.

"Old man," said a fellow pilgrim near,
"You are wasting your strength with building here,
Your journey will end with the ending day,
You never again will pass this way.
You have crossed the chasm dark and wide;
Why build you this bridge at eventide?"

The builder lifted his old gray head:
"Good friend, in this way I have come," he said,
"There followeth after me today
A youth whose feet must pass this way;
This chasm that has been as naught to me
To that fair haired youth may a pitfall be.
He, too, must cross in the twilight dim,
Good friend, I am building this bridge for him."

Looking backward we might well review some of the great pioneers who might be termed "bridge builders." Perhaps one of the most important of these was Florence Nightingale, that angel of mercy and cleanliness in the hospital. During the Crimean War at the barrack hospital at Scutari she demonstrated the great need for fresh air, cleanliness, and trained attendants in the care of the sick. She laid the foundation for the modern trained nurse. Next came the work of Louis Pasteur and his immediate followers who bridged the great chasm of darkness and death in relation to bacteriology. Joseph Lister in 1867 showed that infection in wounds could be prevented by antiseptics and by cleanliness, and the advent of surgical cleanliness, the supreme virtue of modern hospitals, dates from his time.

Perhaps that greatest and most appalling "grand canyon" of death, tuberculosis, might be said to have been spanned by Robert Koch and his followers in Germany through the discovery of the tubercle bacillus and its relationship to infection. In the conquest of diphtheria, special pathways and bridges for the feet of little children were laid down by Behring, Roux, Park, Schick and many others.

We cannot fail to mention with considerable pride our own Oliver Wendell Holmes, who even prior to the demonstration by Semmelweiss, suggested that puerperal fever was a true infectious disease. This discovery lifted a tremendous burden from the women of mankind and might truly be said to make up one of the most important bridges on the pathways of life. In that great field of prevention of infection, the introduction by Jenner of vaccination against smallpox certainly must be mentioned as the laying of foundation stones. The very basis of all our modern work in immunology rests upon this noble experiment.

The pioneer work of Laveran with malaria, together with the work of Ross and finally our own Americans, Walter Reed and his associates at Havana, opened up the pathway of safety in dealing with disease carried by mosquitoes and insects. In this connection we must mention the name of another American, that of Ricketts, whose fundamental demonstration on ticks in the transmission of rocky mountain fever was of supreme importance in the west. It is romantic indeed to think that even the humble, obscure and remote pathways from the mountains in Montana to the jungles of Africa, can and shall be made safe through preventive medicine for those who tend the sheep and herd the cattle. How truly democratic is the field of preventive medicine which makes smooth the way not only for those in high places who

travel on the broad highways, but yea, even for those whose walks lead in the humbler and simpler bypaths of life.

In the field of intestinal parasites the names of those workers who have driven many rivets in these life-saving structures are too numerous to mention in detail. Perhaps most fundamental are the development of water supply purification methods, improvements in disposal of sewage, together with the clinical work on typhoid by Budd and others.

The early history of sanitation is closely linked with the names of Sedgwick, Burdon-Sanderson, and Kirkwood. Likewise the development of chlorine treatment of water by De Morveau of France and Cruickshank of England, together with the work of George W. Fuller in America, deserves special mention. The first steps taken by Wyatt Johnston, of Montreal, were the beginning which culminated in the development of standard methods of water analysis.

Closely connected with this subject of bridge building is the solving of problems related to the development of children in this country. The work of Holt, Jacobi and Josephine Baker on the clinical side, together with modern development of milk production and pasteurization can truly be said to have been epoch making. More lately the growth of our knowledge concerning vitamins, the refrigeration and handling of foods, have cleared many of the obscure and dangerous pathways for childhood and motherhood. Perhaps nothing is more fundamental to the health of mankind today than the development of means of purification of milk for human consumption, modern refrigeration and modern canning methods. In our southern states we cannot fail to mention the remarkable lifegiving work done by a host of workers in the United States Public Health Service in dealing with hookworm, malaria, pellagra and many other diseases.

But our bridge builders have not alone been bacteriologists, chemists and research men! These men might be likened to those who test the factors of safety in our health construction work and point the way to methods, but after all the health administrator is the engineer who actually superintends construction. The names of Stephen Smith, Hermann Biggs, George M. Sternberg, William Gorgas, and to bring home to those of us in Southern California, L. M. Powers of Los Angeles, Stanley Black of Pasadena, and Fitch C. E. Mattison of Pasadena, are dear to our hearts. In this brief sketch let us take courage that even those of us who simply patch the worn places in the highways, and yes, those of us who are merely throwing hot rivets to the man higher up to ram home in this great structure, the bridge of life,—we too serve a fundamental purpose. After all, the fate of a nation rests upon the health of its individual citizens. The health officer who applies to the best of his ability modern preventive medicine in town and village carries the fate of the nation in his hands. Let us each therefore do his best to smooth the pathways, be they ever so humble, because after all without the pathways and secondary roads there can be no greater highway of life.

And so when the end comes and the Greatest Engineer of all lifts the draw bridge, may we pass into that final canyon which science perhaps never can successfully bridge with the consoling thought that we have done everything possible for our fellowman in rendering a service to help make the way safe for those who follow after us along the great highways of life!

The Training of Health Personnel*

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THERE is perhaps no problem confronting the public health authorities of the United States of greater importance than to provide qualified health personnel. The development of county health work on a full-time basis is one of the great modern achievements in public health. Since the first full-time health unit was established in Yakima County, Wash., in 1911, this type of health organization has been carefully scrutinized, and based upon the results accomplished it has passed the experimental stage. At the close of 1931 there were 596 full-time county or district health organizations in 36 states. A large proportion of these have been established in southern United States, but it should be emphasized that such health demonstration centers are found at present in all sections of the country. As a result of this extension in health service and other factors, such as the expansion of state health departments and improvement in municipal health services, the demand for adequately trained personnel in this field has exceeded the supply. This problem has also become more acute because of the need for well prepared and experienced workers by voluntary health agencies.

It has been estimated that for each rural population unit of 20,000, theoretically, there should be 5 trained health workers, consisting of a health officer, nurses, and sanitary inspectors, properly to meet the expected demand; and also that it will require as many as 300 physicians a year to supply the demand of health agencies.

The most deterring factors in securing trained personnel from among physicians are the probably inadequate educational facilities for teaching public health and preventive medicine in our medical schools. A large per cent of the health officers in this country should be graduates of medicine, but unless medical students are taught in a comparable way the preventive aspects of medicine it is not probable that the promising graduates of medicine will become interested in sufficient numbers to adopt public health as a career. A careful analysis of the facilities for teaching preventive medicine and public health to medical students has been made, and of the 60 medical schools included in this analysis only about 12 use facilities and employ methods for teaching this subject in a manner comparable with those for such subjects as anatomy, physiology, medicine, and surgery. The instruction in the remainder appears to be unsystematic and poorly organized. This phase of teaching seems to have received less attention than many subjects of relatively minor importance in the medical curriculum. In only a small number of schools does it seem that a broad concept of public health is developed or that the subject is being treated in a manner commensurate with

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its far-reaching importance. The frequent combination of preventive medicine and public health with departments of bacteriology and even pathology does not seem logical or sound from the pedagogic point of view, since a modern public health program is a dynamic function more closely related to the clinical branches of medical science. We wish, therefore, to stress the defect which exists today in this respect in teaching medical students and the serious consequences which will follow because of their lack of understanding of the principles of preventive medicine and the trends in the field of public health. Obviously, in considering the problem of the training of health personnel a fundamental need is to provide better facilities for teaching the undergraduate medical student the principles of public health. This would place him in a position to more successfully use his knowledge concerning the prevention and control of disease in general practice.

It is generally agreed that one of the great needs in public health education in this country is to supply trained personnel for local or county health departments. There is urgent need at the present time in different sections of the country for graduate courses in public health which will provide fundamental training and afford opportunity for experience in the field for those seeking positions in public health. There are approximately 3,079 counties in the United States. The ideal would be to have all of these counties individually or in groups organized on a full-time basis. It is, therefore, evident that some plan must be worked out by which more adequately trained personnel can be provided for the relatively smaller units of health organization. Such a plan should also provide opportunity for "refresher" courses with reasonable regularity.

This can probably best be accomplished by better utilizing the facilities in certain universities for training health personnel. From the point of view of convenience, economy, and stabilization of local health service, the establishment of graduate courses of instruction in certain medical schools, or graduate schools in coöperation with state and local health departments would contribute largely toward supplying this demand. We must not overlook the important fact that the health officer of the county becomes a general practitioner in the field of public health and consequently he cannot specialize in any one branch of preventive medicine.

There are as many as 5 groups of medical men who apply for positions as county health officers: (1) the recent graduate who is interested in a salaried position merely in order to save sufficient money to establish himself in practice; (2) the physician who has spent several rather unsuccessful years in practice and is desirous of making a change; (3) the practicing physician who has been fairly successful, but on account of the strenuous activities associated with practice is desirous of taking up public health work, being under the impression that he will be relieved of much of the stress and hardship incident to private practice; (4) the physician who has been successful in practice and who goes into public health because he has obtained from association with public health officials and from seeing the needs of his community an insight into this new field of medical activity and its possibility for service; (5) the young graduate in medicine who has had instruction in preventive medicine and who has a real interest in following public health as a career. At present there are not enough men in the last 2 groups entering the field.

Until within recent years the field of experience was the only school in which

most physicians gained their knowledge concerning public health procedure. While this has been necessary in the past, owing to a lack of facilities for adequate instruction, it should no longer be encouraged. The development of public health in the past 15 or 20 years has been so rapid that it is hazardous to place wholly untrained persons in the field.

In October, 1922, the International Health Division of the Rockefeller Foundation in conjunction with the State Health Department of Alabama established a field training station at Andalusia. The plan followed in this station was to place the candidate in the field immediately upon his arrival. Obviously, all the training was practical. He was associated in the field with some member of the county health department. The actual experience which the person obtained depended upon the amount of time he could remain at the station. If he remained long enough he would be assigned definite tasks or be given a field problem to study. All of his work was supervised and planned as far as possible by the director of the station. Those in training were also instructed concerning methods of handling reports, filing records, and given some idea with reference to the details of administration. Conferences were held on one afternoon a week to plan the work for the coming week. Usually some public health problem was discussed by the director of the county unit or by some member of the staff of the state health department. The primary purpose of the training station was to provide field experience and appraisal for newly appointed members of the staff of the International Health Division in preparation for the responsibilities of foreign service, and also to aid state health organizations in this respect. The two great schools of public health had just been established and there was certainly a definite need for field stations for determining the suitability of persons for public health work.

Following the opening of this station two others of a similar nature were started, one in Mississippi and another in Ohio. Somewhat more recently a fourth training base was established in Michigan in connection with the state health department. These training stations represented an attempt to train health personnel by a more or less intensive field method. During the first 5 years 283 physicians were enrolled. Of those trained during this period in Alabama 13.6 per cent did not receive the approval of the director. These stations served a valuable purpose. This method of training health personnel has stimulated interest concerning the need. Such training stations have been discontinued. There are, however, a few states which are endeavoring to provide limited field experience for new appointees before entering upon their work.

Since the problem of training health personnel is one that confronts each state health organization, there may be some value in recounting the essential advantages and disadvantages of the field training station.

To enumerate the advantages:

1. Physicians who would probably have gone into some other field of medicine may be induced to enter upon public health work.
2. These stations have also served to awaken an interest and enthusiasm in public health and have given to those undergoing training a better conception of the scope of preventive medicine.
3. The individual has obtained a better idea of the relative values of the various public health procedures.
4. It has been a means for giving physicians who were interested in going into public health as a career an opportunity to determine whether or not they were adapted to this phase of medical service.

What are the disadvantages of the field training station?

1. These stations have been placed in rural counties where there is a representative health organization usually consisting of a 4-person health department, and the lack of personnel for proper supervision and teaching has been a handicap to efficient instruction.

2. It is practically impossible to carry on a balanced county health program and at the same time assume considerable responsibility for teaching unless additional personnel is provided.

3. A lack of transportation facilities is also a serious handicap.

4. Many of those who register for training are physicians who have been out of college a number of years and but little opportunity is afforded to review the fundamentals of preventive medicine and public health.

5. The kind of training received depends upon the time of the year and also the activities in progress at the time the physician comes for training.

6. No definite systematic instruction in the sense that it is given in a university is attempted. An effort is made to teach and to show what is meant by a balanced county program, but even though this is attempted the time is inadequate to give one the essential knowledge for outlining a program in carrying on county health work. These disadvantages seem to confirm the idea that a more intensive and thorough preparation is required.

During the past decade or so courses of instruction in public health have been given in various ways. They have ranged from so-called institutes of a few days' duration to a full course leading to a degree of Doctor of Public Health. All agree that something more than a didactic course is necessary to prepare a man for a career in public health. Any plan of instruction should include a limited supervised field experience. The principles employed in actual practice must be stressed.

To carry out such an idea would necessitate coöperation between educational institutions and administrative health agencies. Such an arrangement is necessary in order that proper standards and methods of instruction be developed and maintained. We are, therefore, of the opinion that courses in public health should be organized in a few universities representing different sections of the United States so that systematic instruction is made more available to those who may wish to enter upon public health. It is well to remember that the undergraduate student of medicine today is a graduate of an accredited high school; he must have had not less than 2 years of college work, and a large number of candidates for the degree of Doctor of Medicine have obtained the bachelor's degree; added to this is 4 years in a medical school and then from 1 to 3 years of internship before entering upon his career, whether it be in general practice or public health. Those who desire to specialize in some phase of public health may in addition devote from 2 to 3 years to study further in a school of public health. However, experience shows that in this transitional period in public health development in the United States it is necessary to afford opportunity for physicians and other types of personnel to secure more limited courses of intensive training in the state, or at least in the section of the country, in which these persons wish to engage in public health work.

It is for this reason that we have attempted to develop a postgraduate (graduate) course in public health in Vanderbilt University in coöperation with the Tennessee State Department of Public Health. By such an arrangement the resources of a teaching institution can be coördinated with the health department. The teaching force is drawn from the Vanderbilt University School of Medicine, the Tennessee State Department of Public Health, and the local health departments. This course has been established on a satisfactory basis and has been given at reasonably regular intervals since 1928. The primary purpose of the course is to fit graduates of medicine for positions as county health officers. It is intended to be an introduction to the subject; to

give the physician a working knowledge of public health; and to give him a better foundation upon which to build. Two main objectives are recognized: (1) to acquaint the medical graduate with the field of public health, its possibilities, its problems, and methods of work; (2) to develop the point of view of the health officer. This course affords an opportunity to review certain fundamentals and at the same time give considerable attention to the administrative side of public health. During this period instructors are able to estimate a physician's potentialities as a county health officer.

The completion of the postgraduate course offered requires 12 weeks, divided into 2 periods of 6 weeks each. The first period consists of lectures, demonstrations, laboratory work and group conferences. It has been found necessary to give some clinical instruction. This is important because it is desirable for a local health officer to know not only preventive medicine and public health but also clinical medicine, at least to the extent of being acquainted with diagnostic methods, particularly in the field of acute communicable diseases. The second period is actually devoted to field work in a well-organized local or county health department. During this period the men in training enter into the regular work of a county health department. In doing so they follow a definite schedule and record their observations. Each man or group of men is given a special problem to study. This usually consists of a sanitary survey of some small town or community. Seminars are held at regular intervals and at the end of the course opportunity is afforded for a discussion of the results of the special assignments. The completion of a course of this kind, or evidence of equivalent instruction and experience, is required by the Tennessee State Department of Public Health for employment as director of a full-time county or district health department.

During the course approximately 500 hours are devoted to intramural and extramural instruction. The following table will give an idea of how the time is divided.

NUMBER OF HOURS OF INSTRUCTION

FIRST PERIOD—INTRAMURAL (CLASSROOM)

Subject	*Number of Hours*
Public Health Administration (General)	81
Communicable Disease Control	48
Sanitation	37
Epidemiology	15
Vital Statistics	22
Maternal and Child Hygiene	15
Medical Zoölogy	12
Public Health Laboratory	9
Industrial Hygiene	7
Mental Hygiene	3
	249

SECOND PERIOD—EXTRAMURAL (FIELD)

County Health Departments	192
Sanitary Survey	38
Total	479

The most important branches of preventive medicine and public health are emphasized.

From personal experience with those who have registered for instruction in these courses, one is led to conclude that the training which each man received has been a factor in his success. Of the men who have taken these courses (more than fifty), all except 3 have continued in public health. They have been particularly successful in retaining the appropriations for the work, even under the present economic conditions. In fact, in some of the counties the appropriation has been increased. The indications are that this plan of training has proved of definite value and has made a contribution in providing better trained health per-

sonnel. We are well aware of the fact that such a course can only be considered as an introduction to public health from the standpoint of specialization. If given for a period of not less than 5 months or possibly a year it would be more satisfactory.

The training of personnel for public health work must be stimulated by the official administrative health agency of each state. However, based on our experience in Tennessee it would be unwise and indeed impracticable for a state health department to develop a plan for training health personnel without the coöperation of an educational institution which has the facilities to undertake this task. On the other hand, it would also be unwise and unreasonable for a medical school or university to assume responsibility without the coöperation of state and local health organizations. It is, therefore, necessary to have a coöperative arrangement between the agencies which will provide the faculty and facilities for systematic instruction in the class room, laboratory, and clinic, and also to have supervision in field work by the staff of a well-organized county health department. In offering postgraduate (graduate) instruction to health officers it has been my experience that the major responsibility in providing the curriculum and facilities for teaching should be assumed by a department of preventive medicine and public health of a medical school or possibly graduate school. This is to stress the point of view that in giving courses of instruction the university is the logical place in which to head up such an organization and it should assume definite responsibility for administering a course of this kind in coöperation with state and local health organizations. The state health department can perform well the following functions in such a plan: (1) develop an appreciation of the need for training health personnel; (2) assist in making arrangements for such training; (3) provide the facilities for field work; (4) insure high professional standards on entering upon health work.

We have referred especially to the instruction of those who may be chosen for health officers. We wish now to give brief consideration to the training of sanitary inspectors. This has been a serious problem to the administrator of state and local health departments. Much of the success of a local health unit depends upon the type of sanitary inspector employed. In most places at present the inspector receives no preliminary training before being placed in the field. He is often chosen on a political basis. Many have had but little educational opportunity. Obviously better provision should be made for the preparation of this type of personnel.

In an endeavor to improve this situation, the State Health Department of Tennessee has worked out a plan for training sanitary inspectors in coöperation with the State University in Knoxville. The requirements for entrance into this course are the same as for entrance into the university. The applicants are recommended by a representative of the State Health Department subject to the approval of the committee on admissions of the state university.

The course, as given at the present time, extends over a period of 15 weeks, 13 of which are spent at the University of Tennessee and in the Health Department of the City of Knoxville, the other two in a rural county health unit. The course is divided into 2 parts, (1) didactic, consisting of 160 hours; (2) field work, consisting of 420 hours not including the 2 weeks with the county health unit. This course attempts to teach the fundamental subjects connected with sanitation and at the same time gives the point of view which a sanitary inspector should have. The

following phases of sanitation are covered:

1. Sewage disposal
2. Water supplies
3. Mosquito control
4. Milk sanitation
5. Control of communicable diseases
6. Practical demonstration in bacteriology
7. Refuse disposal
8. Rodent, insect and vermin control
9. School sanitation
10. Statistics.

Most of the men who have completed this course are now in the employ of the state or county health departments. Doctor Wilhelm has made the following statement in regard to the results obtained.

> In the beginning the Tennessee State Department of Health and the University of Tennessee felt it was a new departure and entirely experimental, but after completing 4 classes and experiencing the type of work these men have done with the county health units to which they have been attached, these institutions feel that it is a sound way to train sanitary assistants and feel well repaid for the effort put forth.

The other type of health personnel which should be given consideration is the public health nurse. An effort is now being made in Vanderbilt University as well as other institutions to teach the undergraduate nurse the principles of prevention in the undergraduate curriculum just as is being done in a number of schools in the instruction of medical students. In this way the student nurse should have a fair knowledge of hygiene and preventive medicine prior to entering upon special courses required for training in public health. It is imperative that the preventive point of view be emphasized throughout the curriculum of the undergraduate nurse and that she be made to realize her responsibility in the promotion of individual and community health. During the past decade or so special courses have been offered in a number of institutions for the training of public health nurses which include theoretical instruction, laboratory work, and to some extent field demonstrations. Within recent years there is obviously a growing interest to establish field training for public health nurses as a part of their instruction both in the undergraduate and graduate curriculum.

The nurse fills an important place in the scheme of public health and too little attention has been given to the preparation of nurses who wish to enter public health work. In the School of Nursing of Vanderbilt University a course has been provided for training public health nurses, including such subjects as public health administration, the control of communicable diseases, prenatal and infant hygiene, school hygiene, mental hygiene, dietetics, and other phases of medical and public health service which are needed by a public health nurse in carrying out her part of the program in a public health organization.

During the early period in the development of public health in this country it was exceedingly difficult to secure trained personnel. It has been necessary frequently to follow a course in selecting personnel which could not be regarded as altogether satisfactory. Public Health has, however, passed the experimental stage and we have now entered upon an era which demands trained personnel. Public health has become a specialized phase of medical service requiring trained health officers, trained public health nurses, trained inspectors, trained sanitary engineers, and well selected subordinate personnel for clerical duties.

Opportunity is afforded now for one to get special preparation in 2 great schools of public health, Johns Hopkins and Harvard Universities. Graduate courses are being offered higher degrees also in several other institutions. However, there is as yet an insufficient

emphasis placed upon postgraduate instruction of a university type for those who wish to gain fundamental training before entering upon public health. This need not be so extensive and intensive as may be desired by those who wish to follow the more specialized phases of public health.

As has already been emphasized, local full-time health department personnel should be trained as practitioners of public health, and at least in this stage of public health development in the United States we cannot expect, nor should we require, that physicians who may wish to become health officers devote as much as 2 years in preparation for such service. We are endeavoring to differentiate between the individual who assumes responsibility as a general practitioner of public health and one who may wish to specialize in some field of public health service. The ideal plan would be for every one to receive specialized training at least from a theoretical standpoint, but we are confronted with a practical situation which must be dealt with in a reasonable and judicious manner. It is for this reason that emphasis is being placed upon the need for a type of instruction which will provide a more efficient health personnel in meeting present demands with the hope that the qualifications, certification and licensure of health personnel in the United States will in the near future be more definitely established.

The progress of public health work will depend in a large measure upon the type of personnel selected for such service and this will also be an important factor in stabilizing public health organizations. There has been remarkable development within the past decade or so in providing facilities for public health work, but the facilities for training health personnel have not been made available in different sections of the country so that those who may wish to enter upon public health as a career can gain the instruction and practical experience which is needed. This is a need that should be supplied.

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The Relationship of Public Health to the Doctor in Private Practice*

CHARLES W. DECKER, M.D.

Health Officer of the City of Los Angeles, Calif., one time Col. M. C., U. S. Army; Instructor in Military Surgery, Medical School, University of Southern California, etc.

THIS has been more or less a controversial subject for many years. Every period of depression stimulates its discussion. The prolonged economic depression now prevailing has acutely accentuated this problem, for physicians are unable to collect fees from patients who have no money.

Public Health as a field of medical endeavor is of comparative recent development. In 1864 New York City appointed saloon keepers and ward heelers custodians of public health as political rewards, and the service rendered was what one would expect from such personnel. The day has passed when a drygoods clerk or a bright young man from a banking house is considered capable of handling problems of public health.

Health officers themselves have not been blameless in delaying a better understanding of their relationship to general medicine. We can all recall the type of health officer, who, like the Pharisee, when he thanked God he was not as other men were, thanked God he was not as other doctors were. Only by recognizing that public health is a field of special practice of preventive medicine as distinctively a specialty as surgery, otology, or ophthalmology, can we probably orient ourselves in the general group of scientific organized medicine.

The curative field of medical endeavor reaches back into the earliest historical records of man. The hieroglyphics of the Egyptians and the clay tablets of the Babylonians contain descriptions of therapeutic practice of their day. Public health is comparatively of so recent origin, that its very newness has resulted in diversity of expression regarding its purposes and even the ethics of its aspirations.

It was but natural that with the dawning of community consciousness of public health responsibility, the most available personnel should have been utilized to carry on the not too well understood sanitary program. Quite generally throughout the East the City Poor Doctor readily stepped into service as the health officer. In our newer Western communities, medical care of the indigent sick grew up with public health, and little if any segregation has ever been made of personnel engaged in the preventive practice of public health, and those in purely curative medicine.

School health and development work is often criticized as an additional burden that public health puts upon the tax payer. This is an unfortunate mis-

* Read before the Fourth Annual Meeting of the Western Branch of the American Public Health Association, Pasadena, Calif., May 30, 1933.

conception of what school health and development really is. It should more properly be designated as corrective physical education. The child with a visual or auditory defect, damaged heart, neurological impairment or deformity needs the care and guidance of skilled physicians, who are at once medical specialists and trained educators. The physically handicapped child requires this expert supervision if it is to develop into a useful citizen, instead of a charge later upon its family or public charity. The budget for corrective physical education should no more be charged as public health expense than any other part of the curriculum.

When declaration is made that public health should concern itself strictly with control of communicable disease, leaving therapeutics to private practice or welfare clinics, there are those who feel that all romance and interest would be removed from public health work. Glorious as have been the discoveries of curative medicine in alleviating the sufferings of mankind, equally glorious and romantic have been the sacrifices of our army medical and public health officers, who with their lives paid for the knowledge that now gives us control of yellow fever, malaria, typhus and Rocky Mountain spotted fever.

In California, statute law specifically designates counties as responsible for welfare,—food and shelter and medical care of the indigent sick. Such being the law, our City Attorney has expressed the legal opinion that we may no longer expend funds of our public health budget upon welfare. The Los Angeles County Welfare Department has some 17 million dollars in its budget entirely separate and apart from County Public Health, and can properly provide required care. When public health can eliminate entirely curative practice, excepting only treatment of indigent sufferers from communicable disease, from its field of labor, it will be relieved of the most frequent cause of criticism from the physician engaged in private practice. Doctors, and not infrequently the medical societies, complain that public health physicians immunize and vaccinate children to the detriment of the private physician's income. Public health can not abdicate its responsibility to safeguard the health of the community. We can, however, meet the criticism by agreeing to discontinue our immunization and vaccination services, when and to the degree that the private physician accepts his responsibility by doing this preventive work. We should place the baby requiring immunization in the private physician's lap, with the observation that we were but its guardians, and gladly restore it to its natural parents. Every doctor has a degree of responsibility in protecting the public health, and when he recognizes this, we will have more money and personnel to devote to sanitary services outside his field of activities.

It has been the endeavor of the Los Angeles City Health Department to cultivate friendly understanding with organized medicine as represented by our County Medical Association. This has happily been accomplished and at our request the Board of Councilors of the Los Angeles County Medical Association have constituted their Public Health and Public Relations Committees the Medical Advisory Board to the Health Officer. With such an intimate affiliation between public health and organized scientific medicine there can be built up in years to come an ever better, happier and more useful public health service, recognized, as it should be, as an ethical specialty in the broad field of medical practice.

EDITORIAL SECTION

Expressions of opinion and statements of supposed facts are published on authority of the writer under whose name they appear, and are not to be regarded as expressing the views of the American Public Health Association, unless such statements or opinions have been adopted by vote of the Association.

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THE INDIANAPOLIS MEETING

WE have just sent out a News Letter containing the call for the meeting of our Association in Indianapolis, October 9–12, to which more than usual interest attaches. We met there last in October, 1900, and it was there that Walter Reed, Chairman of the Army Commission sent to Cuba to study yellow fever, made the first announcement of his success in transmitting the disease by the mosquito now known as the Aedes aegypti. That meeting is rightly considered one of the most notable in the history of our Association. While every member of the Commission is now dead, a few of those who took part, almost all as volunteers, are still living, and we are making every effort to have some of them present at the meeting. This demonstration of Reed and the Commission has been justly described as the most important contribution to science ever made by an Army surgeon, and as being second only to anaesthesia in its benefits to the human race. To this opinion we heartily subscribe.

It is proposed to have a special session devoted to yellow fever in which the part the Army Commission played will be discussed, and the Surgeon General of the Army has been invited to give the leading address on this occasion, and it is our firm opinion that he is the proper person to do this. Unfortunately, one or two of those who took part in these experiments, who are still living, through the infirmities of age and disease will be unable to be with us, but in spite of this, their names will be mentioned and due honor paid their courage and self-sacrifice.

As far as this country goes, yellow fever is a disease which has been confined practically to our southern states, in spite of the terrible epidemic of 1793 in Philadelphia, and some outbreaks even farther north. It is hoped that this fact will not lessen the interest of those from Canada and our northern states. There

can be no question that the studies conducted by Reed have not only cleared up the situation in regard to yellow fever, and saved thousands of lives, as well as millions of dollars through the opening of ports which were previously closed from spring until a killing frost in the fall, but have also been fertile in bringing about methods of study and researches which have had a far-reaching influence.

Yellow fever, from being the greatest menace of the tropics to our country, now occupies an almost negligible position, and never again will North America suffer an epidemic. Further than this, the studies carried out in Africa under the Rockefeller Foundation have added much to our knowledge, so that this disease, which was so mysterious even within the memory of most of us, is now an open book, and we are well on the road to the discovery of a practical vaccine by which non-immunes may be protected. There is no place in medical science for local or even national prejudices, and the same is true of science in general, though illness and death bring nations even more closely together than any other factor.

For many of us, a visit to Indianapolis will bring back delightful memories of Dr. John N. Hurty, for so many years the genial and efficient Health Officer of the State of Indiana. He was our host in 1900, and only to our younger members is it necessary to say that he embodied all that is best in what is implied in the word "host." Dr. Hurty was more than a health officer. He was a poet and philosopher. On another page (796) we give one of his poems which has been circulated far and wide, and has done an enormous amount to make people realize what preventive medicine and public health mean.

This issue of our Journal has the usual information concerning routes of travel by train, automobile or airplane, and it is only necessary to emphasize the unusual features of the meeting in Indianapolis, and to urge as large an attendance as possible, if for no other reason than to honor those who have done so much for humanity as well as for commerce.

CHARLES PORTER, M.D.

THE many friends of Dr. Porter among the membership of the American Public Health Health Association, of which he is an Honorary Member, will be delighted to know that he has been unanimously elected President of the Society of Medical Officers of Health of England. The apparent delay in giving him this honor was due entirely to his modesty, since for some 10 years he has been repeatedly nominated, and has as often withdrawn his name in favor of some colleague. This year, four nominations were made, but the other three withdrew in favor of Dr. Porter. He will assume office on October 1.

Dr. Porter is so well known that it seems unnecessary to give a list of the degrees and honors which he holds. It is suitable to mention, however, that in addition to his medical degrees, he is also a Barrister-at-Law, and holds the office of Medical Officer of Health of St. Marylebone, London. His other qualifications may be found in Who's Who.

He has held many positions of honor in the various associations with which he is connected, and has had a large experience as a lecturer and teacher, as well as an adviser in outlining studies in hygiene for other universities, and also on

examining boards, such as that for the Royal Sanitary Institute and Sanitary Inspectors' Joint Examination Board. He has been a prolific contributor to various journals on public health and, for a number of years, has been Honorary Editor of *Public Health*, the official organ of the Society of Medical Officers of Health of England.

Those readers who have not had the pleasure of meeting him—for indeed his visits to this country have been entirely too few—will recognize his letters in our Journal. At our Montreal meeting, at his suggestion, an arrangement was made by which he contributes to our Journal, and the editor of our Journal contributes to *Public Health*. The section of *Public Health* under the head of "Ut Ita Dicam" would alone make a man's reputation as a writer. Not only does it cover every item of interest in public health, but it is written with such a keen wit, tinged with a bit of cynicism, as to make it a delight to all. *Public Health* will continue to be edited in Dr. Porter's office at St. Marylebone, Dr. James Fenton, who has been associated with him in at least one publication, having been appointed editor.

In addition to Dr. Porter's articles for journals, the following publications are credited to him: Sanitary Law and Practice (Robertson and Porter); Sanitary Law (Porter and Fenton); School Hygiene and the Laws of Health; Elements of Hygiene and Public Health; The Future Citizen and His Mother; and the Parkin Prize Essay on Cholera.

Our readers will be glad to know that he does not look forward to discontinuing his letters. It is a peculiar pleasure to the editor of our Journal to be able to make this announcement authoritatively. His personality has made for Dr. Porter hosts of friends in every country where he is known, all of whom will take pleasure in knowing of the honor which he has at last accepted. This Journal adds its own congratulations and also felicitates the Society on obtaining his services as President.

EPIDEMIOLOGY AND AIR TRAVEL

WE have several times alluded to the problems connected with the transmission of infectious diseases from one country to another by the increase in air travel. It has long been recognized that as a rule contagious diseases travel at the same rate as means of human communication. For a long time infected man was considered perhaps the only danger, and the first international sanitary convention held concerned the prevention of the carriage of Asiatic cholera along caravan routes.

As early as 1585, we find that the City of Aberdeen took precautions "in case any infectit person might arrive or repair by sea or land to this brough," and erected gibbets for the punishment of those who harbored or even aided such persons. In 1663, Pepys tells of the arrival of plague at Amsterdam brought by a ship from Argier, and says that the King of England purposes to forbid Dutch ships from coming into the Thames. In those days of sailing vessels, practically all diseases which might have been carried by ships passed the period of quarantine (40 days) on the voyage. With the coming of steam, conditions were tremendously changed, and now again with airplanes, an entirely new problem is presented. Speed of transportation is, other things being equal, equivalent to reduction in distance.

The Health Organization of the League of Nations, the International Air Navigation Commission, and the International Hygiene Office in Paris have already had a number of meetings to consider the problems which have arisen. Reports have been made by several ministries of health, and measures have been taken by some countries against the exportation and importation of diseases by airplanes.

Some of the most interesting experiments have been done by the U. S. Public Health Service, which has shown that a number of mosquitoes, including some of those known to carry disease, may be transported easily from tropical countries to the United States, and also that occasionally these mosquitoes will bite human beings at an elevation of 3,000 feet. Not only have mosquitoes traveling by their own volition, so to speak, been found arriving in this country, but when stained mosquitoes are liberated in the cabins of airplanes, a considerable number of them survive the trip, and are found in good condition on arrival. There can be no question that other insects known as disease carriers can survive airplane travel in the same way, and theoretically, at least, some of them can find more comfortable quarters in planes than mosquitoes.

Among the infections which seem to be the greatest menace to the world are yellow fever, plague, Asiatic cholera, and smallpox. The incubation period of these diseases is respectively 6, 6, 5, and 14 days, while the airplane trip between the countries in which these diseases are endemic and England, for example, runs from 6 to 3 days. With constantly increasing speed and the likelihood that airplanes may soon fly through the stratosphere, where speeds will be still greater, the menace will be correspondingly increased.

Yellow fever is now known to be endemic on both the east and west coasts of Central America, the north and part of the east coast of South America, and a large part of the western coast of Africa. So far it has not been carried from west to east, for reasons which are not well understood, the vector mosquito seeming either unable or unwilling to make the trip. On the other hand, the potential geographical incidence of the Aedes aegypti includes parts of both coasts of North and South America, Africa, India, part of China, and the Straits Settlements, and the east coast of Australia. From what we know of the history and spread of malaria, there seems to be good reason to believe that should a case of yellow fever be carried into any of these areas, the disease could and probably would be propagated and possibly become endemic. When we think of the hundreds of millions in India, South China and the Straits Settlements among whom epidemics might occur, the possibilities are appalling.

Plague is indigenous in India. It has been said that this country is its natural home and habitat. It is constantly present in the South of China and some of the Straits Settlements, as well as in China. In the past, it has been repeatedly brought by ship and by caravan routes to the West. New relationships bring new responsibilities and new dangers. Becoming a world power has brought to the United States responsibilities and dangers which were never thought of only a few years ago. Trade must be carried on. So far we have been able to overcome the principal diseases found in the trade routes of the world, and there is little doubt that we will accomplish the same with respect to airplane travel. Until now the limitations and expense of traveling by airplane have been such as to limit the risks. Only the richer and better class of people, as a rule, travel by airplane. It would surprise no one, however, to see air travel become much cheaper through the introduction of planes which would carry 100 or more

passengers. Indeed, in the United States, along some routes travel by air is at present cheaper than by rail, when the cost of meals, parlor cars, etc., are taken into account.

We are entitled to a great degree of satisfaction in knowing that several leading countries, such as America, England, Germany, and France, are well aware of the problems and are actively studying them. The work of the Rockefeller Institute in developing a vaccine against yellow fever is also reassuring.

These and other problems are considered in a very timely volume,[1] which includes maps showing the distribution of several diseases and the habitat of carrier mosquitoes for them, and also measures which should be adopted against the transmission of these diseases by airplane. It is high time for us to go beyond regarding the airplane as a curiosity and a wonder, and to recognize that it has come to stay as a means of transportation.

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Sixty-second Annual Meeting of the American Public Health Association, Indianapolis, Ind., October 9–12, 1933, Headquarters, Claypool Hotel

LETTER FROM GREAT BRITAIN

BRITAIN'S PREMIER HEALTH CONGRESS

The annual congress of the Royal Sanitary Institute—which, as I believe I have already mentioned, corresponds to the conference of the American Public Health Association—was held this year during the week June 17–24. This was somewhat earlier than usual on account of the fact mainly that the venue was Blackpool, a seaside health and pleasure resort and a popular "congress town" in the county of Lancashire, where the season is at its height in July, the usual meeting time, and in July accommodation for other than pleasure seekers is difficult to secure. For the reason that the Minister of Health had advised local health authorities that he would not approve the payment of the expenses of more than one delegate to this or any other conference, it was expected that the attendance would be much below that of previous years. Curiously, this was not the case, the official returns showing the actual number registered as 1,353, as against 1,389 in 1932. So far as health officers are concerned, the impression gained was that there was little or no falling off, all or nearly all of those one expected to meet being encountered here or there at functions or meetings. Of delegates from overseas there was a goodly number, including four representatives of the United States of America. Amongst these I was particularly pleased to find present, representing the Government, Dr. John McMullen, Medical Director in Supervisory Charge, European Activities, and stationed in Paris; and Dr. F. J. Halpin, Passed Assistant Surgeon, United States Public Health Service, now at the Consulate in London. As this is some two blocks from this office we meet only at congresses held in the provinces. In addition to Dr. McMullen and Dr. Halpin, there attended from the United States of America a representative of the Massachusetts Department of Public Health, James L. Tighe, and Professor Felix d'Herelle of Yale University. Dr. Richard A. Bolt of Cleveland, Ohio, now in Europe studying maternity and child welfare provisions, in Germany particularly, under an award from the Oberlaender Trust, interrupted his enquiries in Berlin to attend the congress, and helped very greatly by taking part in several of the discussions. As he is attending also what is called—without, it would seem, much sense of euphony—"The Sixth English-speaking Conference on Maternity and Child Welfare," which opens in London, and a pediatrics conference later, there will be further opportunities of seeing something of him. Amongst other countries sending delegates were China, Costa Rica, Egypt, Hungary, Iraq, and Italy. Some of these and others from overseas British dominions we had the pleasure of hearing at a luncheon given to overseas representatives, a function which is perhaps the most attractive of the several gatherings held during the week.

MATTERS OF MOMENT

Meetings during the course of the congress were very numerous, and a multitude of papers were read and discussed at the various sections and conferences. The attendances in certain cases were very large: at one section, for example, when housing questions were under consideration, over 400 were present. The Preventive Medicine and

the Maternity and Child Welfare Sections, always very popular, brought together at times about 300 people. At the former the two main subjects considered were "A General Medical Service for the Nation" and "Psychological Problems in Industry." The former is a question that is exercising many minds at the moment and has arisen, as it was bound to arise, out of the operation of the medical benefits under the National Health Insurance Acts. The British Medical Association has attempted to draft a scheme satisfactory both to the medical profession and the people. The section was fortunate in having Sir Henry Brackenbury, Chairman of Council of that body, as President, and Dr. Alfred Cox, formerly Secretary, as opener of the discussion. The general view expressed was favorable to the provision of a national service, and quite a number appeared to regard the British Medical Association scheme, as propounded by Dr. Cox, as suitable, or at any rate not unsuitable. The opening papers on "Psychological Problems in Industry" came from a professor of psychology (Prof. Pear, of Manchester University), the managing director of a large department store in Liverpool (F. G. Marquis, M.A., M.Sc., of Messrs. Lewis & Co.), and the medical officer (Dr. Leonard P. Lockhart) to the Boots Pure Drug Co. Talk on psychology and problems connected therewith can be immensely fascinating, and these three papers were very greatly to the liking of the listeners, though many did not seem to feel that they were able to do much about it when all the reading and discussing ended. Of the delegates, 2 or 3 hundred chose to attend the Maternity and Child Welfare Section instead of the Conferences of Medical Officers of Health, or Engineers or Surveyors or the Veterinary Hygiene or National Health Insurance Sections or the Section of Architecture, Town Planning and Engineering.

THE MATERNITY AND CHILD WELFARE CONFERENCE

The Maternity and Child Welfare Conference in London, to which reference has been made, now in its sixth year, is one of the events of National Baby Week which falls usually in the first week in July. Primarily the responsibility for the organization of the conference is on a voluntary body known as the National Association for the Prevention of Infant Mortality, though a large number of other bodies concerned in infant and child welfare take part also. The President on this occasion was Sir George Newman, of the Ministry of Health. Responsibility for each of the sessions is placed upon one of the organizing bodies, and as a result this year, as usual, a considerable variety of subjects passed under review. The scope and advancement of ante-natal care, for example; the care and protection of illegitimate children; work on behalf of crippled children; tuberculosis amongst children; and the diet of the child after the period of milk feeding—all of these subjects were opened by persons of repute, and, as the audiences were largely lay, considerable enthusiasm was shown and there was a deal of useful discussion. A feature of the meeting was a clinical course for medical practitioners, arranged partly by the Maternity and Child Welfare Group of the Society of Medical Officers of Health. This included visits to and demonstrations at various hospitals and institutions, and proved very attractive.

THE TRAINING OF THE NURSE FOR THE NURSERY

These had an opportunity of learning something of the need for and advantages of maternity hospitals or homes in connection with maternity and child welfare schemes, and of the propriety of providing special training and qualifications for girls desirous of

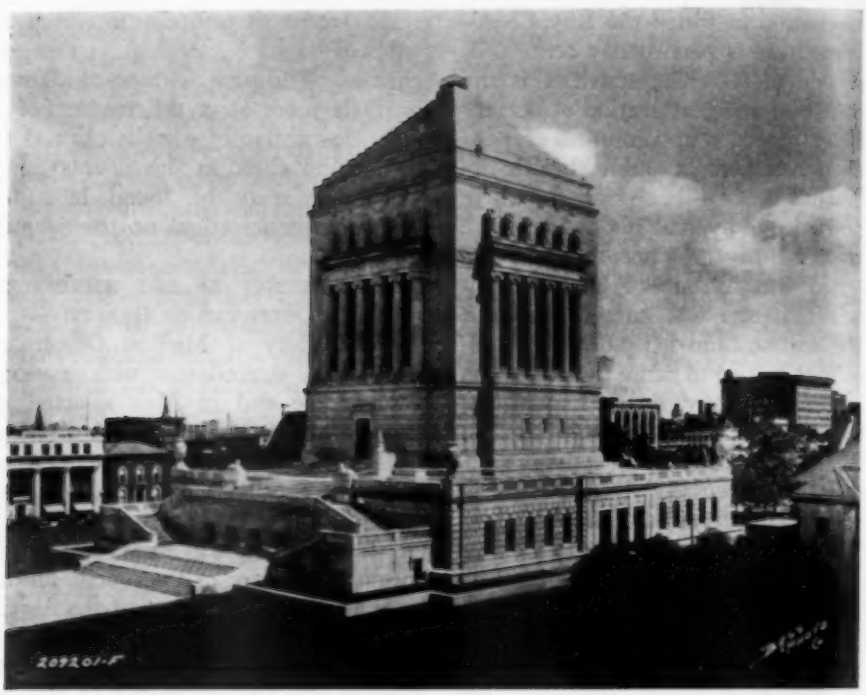
becoming nursery nurses and taking charge of other people's children. This is a question in which the Royal Sanitary Institute is particularly concerned, since one of its chief activities is the examination and certification of persons seeking to secure appointment as non-medical members of public health departments or in other positions where a knowledge of hygiene is a desideratum. It was because the Viscountess Erleigh has had this as one of her chief interests that she was chosen President of the section, and led off with an address that helped to cause the discussion to assume a very lively importance. After the case for maternity hospitals or homes had been completely proved, the section discussed the question of rheumatic infection in childhood, one which is giving rise to a considerable degree of anxiety at the moment and in regard to which many health and education authorities are desirous of obtaining guidance. In the course of the discussion many very interesting and useful views were expressed by persons engaged in an endeavor to deal with the problem, and it is possible to believe that as a result of this meeting a certain amount of advance in the direction of devising a suitable scheme was made. The final subject on which pronouncements were made was the need for the establishment of orthodontic clinics as part of school medical treatment schemes. The time at disposal allowed for little more than the reading of a paper descriptive of what is claimed to be the first clinic in this country, but opportunity may be found later for further communications on the subject.

THE PRESIDENCY OF THE SOCIETY OF MEDICAL OFFICERS OF HEALTH

The Society of Medical Officers of Health, in accordance with custom, towards the end of May selected its President for the next session. The rules provide that each Branch may nominate an individual, and on this occasion four names were put forward. Of the four, three most generously withdrew in favor of the fourth, and as he is an Honorary Fellow of the American Public Health Association he trusts it may be a source of gratification to those within the Fellowship of the Association to know that one of their number has had this distinction conferred upon him. His name is appended hereto.

CHARLES PORTER, M.D.

London



Central Shrine of the Indiana World War Memorial Plaza, Indianapolis, Ind.

ASSOCIATION NEWS

THE INDIANAPOLIS MEETING

WILLIAM F. KING, M.D.,

General Chairman of the Local Committee on Arrangements

BENJAMIN HARRISON, when President of the United States, in referring to Indianapolis, said, "I myself am a citizen of a no mean City."

Indianapolis is preparing to extend every possible courtesy to the American Public Health Association and will make every effort to have the 1933 meeting of the Association an outstanding success.

Trips will be arranged to the many places of interest in and about the City and special entertainment will be provided for women members and visitors.

For Sanitary Engineers there will be a trip to the Filtration Plant and Pumping Station of the Indianapolis Water Company and a visit to the Sewage Treatment and Disposal Plant of the Indianapolis Sanitary District. For Health Administrators a visit to the Indiana University Medical Center which includes the University School of Medicine, the University School of Dentistry, the Indianapolis City Hospital, Robert W. Long General Hospital, the Coleman Maternity Hospital and the Riley Memorial Hospital for

children. Of general interest will be visits to the International Motor Speedway; the World War Memorial; Lockerbie Street, the home of the Hoosier Poet, James Whitcomb Riley; Butler University; Garfield Park with its fountains and sunken gardens; Foster Hall, built by Mr. J. K. Lilly and dedicated to the memory of the greatest American song writer, Stephen J. Foster; the Laboratories and Biologic Farm of Eli Lilly and Company; the Scottish Rite Cathedral, said to be the finest Masonic Cathedral in the United States; the classic City Library and the newly erected State Library and historical building; the model kitchens of the Van Camp Company; the home of the Real Silk Hosiery; Indiana Soldiers and Sailors Monument; Municipal Parks and Play Grounds and other distinctive places of interest.

For those who play golf, Indianapolis has to offer five municipal courses in addition to the splendid courses of the Country Club, Woodstock, Highland, Meridian Hills, Avalon and Arlington Clubs.

The Ladies' Auxiliary of the Marion County Medical Society is planning entertainment for women delegates and visitors to the Indianapolis Meeting. While the program of the meeting will be given first importance there will be no lack of opportunity for relaxation, recreation and special features.

Indianapolis will be at its best in October.

ANNUAL MEETING INFORMATION

CONTINUED FROM JULY ISSUE

Reduced Railroad Fares

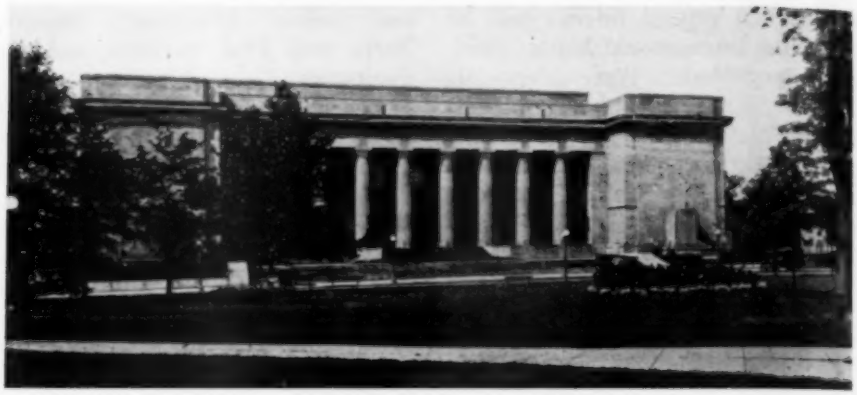
REDUCED railroad fares on the Identification Certificate Plan have been authorized by the several passenger associations in the United States and Canada, which will entitle all members and dependent members of their families to a special rate of fare and one-third for the round trip to Indianapolis.

Under this plan an Identification Certificate *must be presented* to the ticket agent when purchasing tickets. (One will be mailed to every member of the Association on September 5.) This is the ticket agent's authority to issue to delegates and dependent members of their families a round-trip ticket to Indianapolis at the reduced rate. All return tickets must be validated, before leaving Indianapolis, at the regular railroad ticket office.

It is suggested that all members consult their local ticket agents in regard to dates of sale as they vary according to distance from Indianapolis. The final return limit is 30 days in addition to date of sale. Delegates may travel to and from Indianapolis via the same route or via diverse routes, as they prefer, without additional cost.

Members who wish to include a visit to A Century of Progress in Chicago with their trip to the Annual Meeting should consult their local ticket agents as to the best route and the most favorable rates. In some cases, the World's Fair rate granted by the railroads is lower than the convention fare. Ticket agents will advise members who include the Fair in their itineraries concerning the most advantageous arrangements.

A communication to the entire membership will be mailed shortly by the New York Central Railroad giving additional information concerning travel to Indianapolis direct and via Chicago from all parts of the United States. Names of representatives in different sections will be given so that exact local details may be easily obtained.



The Public Library, Indianapolis, Ind.

RAILROAD RATES FROM VARIOUS CENTERS TO INDIANAPOLIS, IND.

From	*One-way*	*Fare and one-third*	*Lower*	*Upper*
Atlanta	$20.47	$27.30	$ 5.63	$ 4.50
Baltimore	24.10	32.14	7.50	6.00
Boston	34.71	46.28	10.13	8.10
Buffalo	16.87	22.50	5.63	4.50
Chicago	6.62	8.83	3.75	3.00
Cincinnati	3.95	5.27	3.00 [1]	2.40
Cleveland	10.23	13.64	3.75	3.00
Dallas	32.90	43.87	10.50	8.40
Denver	41.67	55.56	12.00	9.60
Detroit	9.58	12.78	3.75	3.00
Duluth	23.03	30.71	7.50	6.00
Fort Worth	33.34	44.46	10.88	8.70
Jacksonville	32.69	43.59	10.13	8.10
Kansas City	18.91	25.22	5.63	4.50
Los Angeles	82.21	109.62	25.50	20.40
Louisville	4.19	5.59	3.00 [1]	2.40
Memphis	17.15	22.87	5.63	4.50
Milwaukee	9.68	12.91	3.75	3.00
Minneapolis	21.28	28.38	6.38	5.10
Nashville	10.91	14.55	3.75 [2]	3.00 [2]
New Orleans	31.10	41.47	9.00	7.20
New York	29.20	38.94	9.00	7.20
Omaha	23.97	31.96	7.50	6.00
Philadelphia	25.96	34.62	8.25	6.60
Pittsburgh	13.38	17.84	4.50	3.60
Portland	83.83	111.78	25.50	20.40
Salt Lake City	61.11	81.48	18.00	14.40
San Francisco	82.21	109.62	25.50	20.40
Seattle	83.83	111.78	25.50	20.40
St. Louis	8.87	11.83	3.75 [3]	3.00
Montreal	28.98	38.64	10.13	8.10
Halifax	50.33	67.11	16.08	12.90
Ottawa	27.78	37.04	9.38	7.50
Quebec	34.63	46.18	12.38	9.90
Toronto	17.48	23.31	6.00	4.80
Washington	24.10	32.14	7.50	6.00

1 Seat 75¢
2 To Louisville; seat from Louisville 75¢
3 Seat $1.50

TO THOSE WHO MOTOR

THE Conoco Travel Bureau, of Denver, Colo., offers free travel service. They will send you, on request, a set of state maps individually marked for you, to show you the best and most direct routes from your home to the convention.

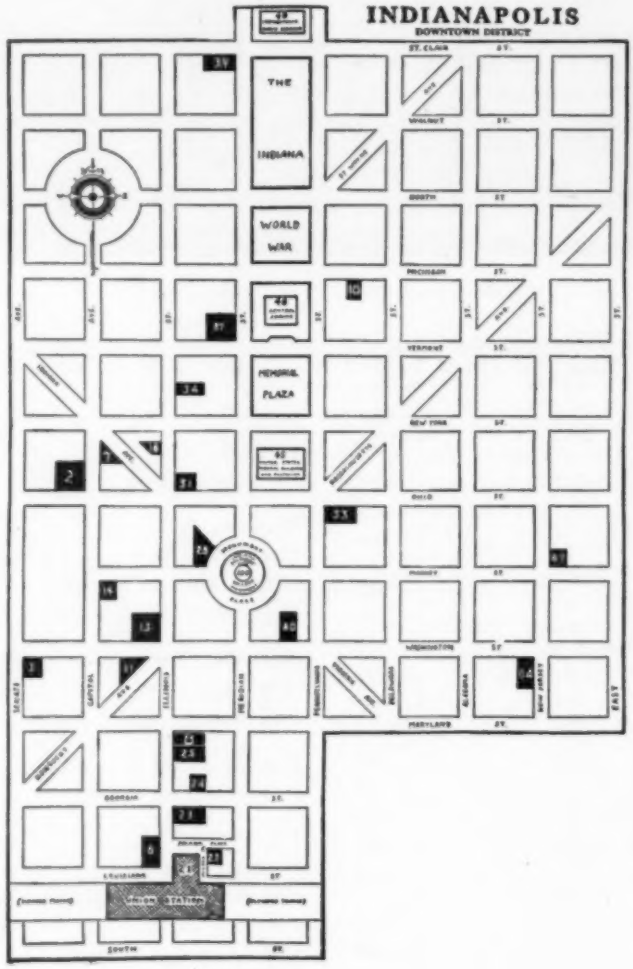
The types of automobile roads and road conditions will be indicated, and lists of hotels and cottage camps will be included. Write the Conoco Travel Bureau, Denver, Colo., or fill in an application card available at any Conoco Service Station.

RAILROAD MILEAGE FROM PRINCIPAL CITIES IN U. S. TO INDIANAPOLIS

From	
Austin, Texas	1,869.0
Atlanta, Ga.	597.7
Albany, N. Y.	761.9
Augusta, Me.	1,070.8
Boston, Mass.	962.3
Baltimore, Md.	700.0
Birmingham, Ala.	615.7
Boise, Idaho	1,974.6
Cheyenne, Wyo.	1,188.6
Chicago	193.6
Columbia, S. C.	712.3
Charleston, W. Va.	320.7
Columbus, Ohio	180.4
Concord, N. H.	1,014.7
Detroit, Mich.	303.3
Denver, Colo.	1,241.6
Des Moines, Ia.	567.9
Duluth, Minn.	669.0
Fargo, N. D.	910.9
Helena, Mont.	1,749.2
Harrisburg, Pa.	615.9
Hartford, Conn.	889.4
Jackson, Miss.	695.4
Kansas City, Mo.	534.5
Lincoln, Nebr.	774.9
Little Rock, Ark.	601.0

From	
Louisville, Ky.	111.7
Los Angeles, Calif.	2,315.0
Madison, Wis.	323.3
Montpelier, Vt.	1,047.4
Miami, Fla.	1,315.9
Montreal, Canada	899.6
Nashville, Tenn.	409.7
New York City	811.1
New Orleans, La.	1,030.7
Omaha, Nebr.	681.5
Oklahoma City, Okla.	794.3
Providence, R. I.	961.3
Portland, Ore.	2,436.7
Phoenix, Ariz.	2,131.6
Pierre, S. D.	966.1
Raleigh, N. C.	914.8
Richmond, Va.	580.7
Reno, Nev.	2,299.1
Seattle, Wash.	2,383.5
San Francisco, Calif.	2,451.6
Salt Lake City, Utah	1,797.1
Santa Fe, New Mex.	1,677.5
St. Paul, Minn.	604.2
St. Louis, Mo.	252.1
Toronto, Canada	566.7
Trenton, N. J.	753.1
Topeka, Kans.	617.1

MAP OF DOWNTOWN DISTRICT



2—Roosevelt Hotel
3—Williams Hotel
6—Spencer Hotel
7—Plaza Hotel
8—Grand Hotel
10—Michigan Hotel
11—Lincoln Hotel
13—Claypool Hotel
(Headquarters Hotel)
14—Harrison Hotel
18—Colonial Hotel
22—Spink Hotel
23—Hotel Severin
24—Stubbins Hotel
25—Lockerbie Hotel
28—English Hotel
31—Brevort Hotel
34—Masonic Temple
37—Scottish Rite Cathedral
39—Antlers Hotel
40—Washington Hotel
53—Denison Hotel
64—New Eastgate Hotel
67—Puritan Hotel

INDIANAPOLIS HOTEL RATES

Hotel	Room Capacity	Single Room		Double Room	
		Without Bath	With Bath	Without Bath	With Bath
Antlers Hotel	250	....	$2.00–$3.50	....	$3.50–$6.00
Brevort Hotel	175	$1.00–$1.50	1.50– 2.00	$1.75–$2.25	2.50– 3.50
Claypool Hotel	600	....	3.00– 5.00	....	4.50– 8.00
Denison Hotel	200	1.25– 1.50	1.75– 3.00	2.00– 2.50	3.00– 5.00
Graylynn Hotel (apartment hotel)	150	....	2.00	....	3.00
Hotel Eastgate	100	1.00– 1.25	1.50– 2.00	2.00– 2.25	2.50– 3.00
Hotel Edward	30	1.00	1.50	1.50	2.00
Hotel English	250	1.25	1.50– 2.50	2.00	2.50– 3.50
Hotel Harrison	...	1.50– 2.00	2.50– 3.50	2.50– 3.00	3.50– 5.00
Hotel Lincoln	400	....	2.50– 4.00	....	4.00– 7.00
Hotel Linden	250	1.25– 1.50	2.00– 3.00	2.00– 2.50	3.00– 4.00
Hotel Lockerbie	200	....	2.00– 2.50	....	3.00– 4.00
Hotel Riley	100	1.25 and up	1.75 and up	2.25 and up	2.75 and up
Hotel Severin	400	....	2.50– 3.50	....	4.00– 7.00
Hotel Washington	250	1.50	2.00– 4.00	....	3.50– 5.50
Hotel Williams	150	1.00	1.50– 2.00	1.50– 2.00	2.50– 3.00
Lorraine Hotel	100	1.25	1.50– 2.00	2.00	2.50
The Seville (apartment hotel)	...	....	2.50	....	2.50– 5.00
Sheffield Inn	90	1.50	2.00	2.00	3.00
Spencer House	125	1.25	1.50	2.00	2.50
Spink Arms Hotel	100	....	2.50	....	4.50

.....*(Cut off on this line and mail to the hotel of your choice)*.....

HOTEL RESERVATION BLANK FOR INDIANAPOLIS MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
450 SEVENTH AVENUE, NEW YORK, N. Y.
OCTOBER 9–12, 1933

To .....
(Name of Hotel)

Please reserve for me .....rooms for.....persons for the A.P.H.A. Meeting.

Single room.....Double room.....

Maximum rate per day for room $.....Minimum rate per day for room $.....

I expect to arrive..... If date of arrival is changed I will notify you at least 24 hours in advance.

Please acknowledge this reservation.

Name .....

Street address .....

City..... State.....

INDIANAPOLIS IS CENTRALLY LOCATED

INDIANA AND SURROUNDING STATES

THE above map indicates the location of Indianapolis with reference to the center of population of the United States, which, according to the 1930 census, is approximately sixty miles southwest of this city.

For those attending the Annual Meeting of the American Public Health Association who are interested in seeing the World's Fair at Chicago, it is interesting to note that there are three main paved highways from Indianapolis to Chicago, driving distance less than 200 miles. Railroad connections between Indianapolis and Chicago over the Big Four-New York Central, Pennsylvania and Monon include 17 trains daily, average running time four hours.

The Preliminary Program of the Scientific Sessions of the Annual Meeting, and other important information, will be published in the September issue.

NEW MEMBERS

The following list includes applicants who have been approved for membership in the A.P.H.A. by the Sub-Committee on Eligibility. These new members have requested affiliation with the sections indicated, and action by the Section Council will follow.

Health Officers Section

Robert M. Dodsworth, City Hall, Venice, Calif., Assistant Health Officer

E. A. Garrett, M.D., 804 Peoria Life Bldg., Peoria, Ill., Commissioner of Health

Earl E. Hansen, 369 Chorro St., San Luis Obispo, Calif., Sanitary Inspector, County Health Department

Oscar D. Ludwig, M.D., 5433 Madison Ave., Indianapolis, Ind., Health Commissioner, Marion County

Elmer T. McGaugh, M.D., Capitol Bldg., Jefferson City, Mo., Health Commissioner

J. Cyrille Pomerleau, M.D., Beauceville East, Beauceville County, P. Que., Canada, County Health Commissioner

Leslie A. White, M.D., Metlakatla, Alaska, Physician, Indian Field Service, U. S. Dept. of the Interior

Laboratory Section

K. George Falk, Ph.D., 151 Central Park West, New York, N. Y., Biological Chemist, Bureau of Laboratories, Department of Health

Francis A. Halliday, A.B., 3505 N. Calvert St., Baltimore, Md., Student (Assoc.)

G. M. Pulkrabek, B.S., 608 S. Dearborn St., Chicago, Ill., Milk Sanitation and Control

Public Health Engineering Section

Edmond Mallet, 2236 Cathedral Ave., N.W., Washington, D. C., Assistant Inspector of Plumbing, District of Columbia

Child Hygiene Section

Bernice Wright, Box 320, Monroe, La., Executive Secretary, Ouachita Tuberculosis and Public Health Ass'n

Public Health Education Section

Ina J. N. Durfee, Wolfeboro Camp, Wolfeboro, N. H. (Assoc.)

Food and Nutrition Section

S. H. Crounse, 10 Vista Road, Madison, Wisc. (Assoc.)

Raymond Hertwig, B.S., A.M.A., 535 N. Dearborn St., Chicago, Ill., Secretary, Committee on Foods

Horace I. Lepman, 228 S. Wabash Ave., Chicago, Ill., Acting Superintendent, Division of Foods and Dairies, State Dept. of Agriculture

Katherine Lloyd, B.S., Armour & Co., Union Stock Yards, Chicago, Ill., Nutritionist

K. M. Royer, B.S., 608 S. Dearborn St., Chicago, Ill., Milk Sanitation

Mervyn B. Starnes, D.V.M., Department of Public Health, Dallas, Tex., City Veterinarian

Public Health Nursing Section

Alice L. Haviland, R.N., 2573 E. 55 St., Cleveland, O., Assistant Director, University Nursing District

Edwina Mattingly, R.N., Shepherdsville, Ky., Bullitt County Public Health Nurse

Virginia E. Moore, Pi Beta Phi Settlement School, Gatlingburg, Tenn., School and Public Health Nurse

Unaffiliated

Joseph M. Dailey, D.M.D., 1478 Dorchester Ave., Dorchester, Mass. (Assoc.)

Nelson W. Strohm, M.D., 87 W. Tupper St., Buffalo, N. Y., Diagnostician, City Health Dept.

Burchard A. Winne, M.D., 28 N. Market St., Johnstown, N. Y. (Assoc.)

Sustaining Member

The Travelers Insurance Company, Hartford, Conn.

ADDITIONAL APPLICANTS FOR FELLOWSHIP

Health Officers Section

Russell E. Hobbs, M.D., Wichita, Kans.

Laboratory Section

James A. Kennedy, Ph.D., Augusta, Ga.

Merl P. Moon, Ph.D., Columbia, Mo.

Public Health Engineering Section

Harold E. Babbitt, M.D., Urbana, Ill.

Alfred H. Fletcher, B.S., Memphis, Tenn.

Charles H. Spaulding, B.S. in C.E., Springfield, Ill.

Walter von D. Tiedeman, M.C.E., Elsmere, N. Y.

Public Health Education Section

Walter S. Mangold, Monrovia, Calif.

Public Health Nursing Section

Hettie W. Seifert, R.N., Elizabeth, N. J.

Ella E. McNeil, R.N., Philadelphia, Pa.

NOMINATIONS FOR THE GOVERNING COUNCIL

IN accordance with the By-laws of the Association, the Nominating Committee reports the following nominations for the Governing Council. The Constitution provides that "upon the petition of twenty-five Fellows, the Nominating Committee shall add the name of any Fellow to this list, providing such petition is received 15 days before the Annual Meeting."

The ten Fellows receiving the highest number of votes on a written ballot cast by the Fellows present and voting at the Annual Meeting in Indianapolis will be elected for the three-year term, 1933–1936.

Dr. Carl Alsberg,
Food Research Institute,
Stanford University, California.

James N. Baker, M.D.,
State Health Officer,
Montgomery, Alabama.

J. Bronfenbrenner, Ph.D.,
Department of Bacteriology,
Washington University,
St. Louis, Missouri.

Walter H. Brown, M.D.,
Stanford University,
Palo Alto, California.

John Collinson, M.D.,
State Department of Health,
Baltimore, Maryland.

Platt W. Covington, M.D.,
1119 Alpine Avenue,
Salt Lake City, Utah.

S. J. Crumbine, M.D.,
American Child Health Association,
450–7th Ave., New York, New York.

A. J. Douglas, M.D.,
City Health Department,
Winnipeg, Manitoba.

Mary J. Dunn,
Vanderbilt University,
School of Nursing,
Nashville, Tennessee.

W. Thurber Fales, Sc.D.,
Director, Bureau of Vital Statistics,
State Board of Health,
Montgomery, Alabama.

W. H. Frost, M.D.,
Johns Hopkins University,
615 N. Wolfe St.,
Baltimore, Maryland.

Paul Hansen,
6 N. Michigan Avenue,
Chicago, Illinois.

I. Malinde Havey,
National Director,
Public Health Nursing Service,
American Red Cross,
Washington, D. C.

Emery R. Hayhurst, M.D.,
1925 Concord Road,
Columbus, Ohio.

Albert H. Jewell,
1020 McGee Street, Room 400,
Kansas City, Missouri.

H. E. Kleinschmidt, M.D.,
National Tuberculosis Association,
450–7th Ave., New York, New York.

John P. Koehler, M.D.,
City Hall,
Milwaukee, Wisconsin.

Sophie C. Nelson, R.N.,
Director, Nursing Service,
John Hancock Mutual Life Ins. Co.,
Boston, Massachusetts.

George T. Palmer, Dr.P.H.,
American Child Health Association,
450–7th Ave., New York, New York.

Thomas Parran, Jr., M.D.,
State Department of Health,
Albany, New York.

Lowell J. Reed, Ph.D.,
Johns Hopkins University,
School of Hygiene and Public Health,
Baltimore, Maryland.

Milton J. Rosenau, M.D.,
20 Chapel Street,
Brookline, Massachusetts.

R. R. Sayers, M.D.,
U. S. Bureau of Mines,
Washington, D. C.

Prof. Henry C. Sherman,
Dept. of Chemistry,
Columbia University,
New York, New York.

James A. Tobey, Dr.P.H.,
Borden Sales Company,
350 Madison Avenue,
New York, New York.

Fred O. Tonney, M.D.,
City Hall, Room 712,
Chicago, Illinois.

H. A. Whittaker,
Division of Sanitation,
State Board of Health,
Minneapolis, Minnesota.

C.-E. A. Winslow, Dr.P.H.,
Yale University,
New Haven, Connecticut.

Radio Broadcast

A new series of weekly health broadcasts, under the auspices of the American Public Health Association, began on Wednesday, June 28th, over the National Farm and Home network. The opening talk on the "Health Budget" was given by Dr. Fred O. Tonney, Head of the Research Staff of the Chicago Board of Health.

The series which is titled "A Nation's Investment in Health," will continue on Wednesdays, at about 12:35 central daylight time, during the summer, and will feature authoritative speakers from the membership of the Association on a variety of subjects.

The National Broadcasting Company and particularly its Agricultural Director, Mr. Frank E. Mullen, are to be commended for the unusual vision and public spirit manifested by them in arranging these broadcasts for the American Public Health Association.

The series is under the direction of the "President's Committee," appointed by the Executive Board for the express purpose, at the last annual convention in Washington, D. C. The committee has "power to act in negotiating and making arrangements to broadcast programs in the name of the American Public Health Association."

The committee consists of Dr. Louis I. Dublin, New York, Chairman, past president of the Association and Vice-President of the Metropolitan Life Insurance Company, Dr. John A. Ferrell, New York, president, Dr. Haven Emerson, New York, president-elect, Dr. Kendall Emerson, New York, Acting Executive Secretary, and Dr. Fred O. Tonney, Chicago, Radio Advisor.

All statements broadcast in the name of the Association will be carefully censored by the committee and hence may be accepted as accurate and reliable within the present state of scientific knowledge. Suggestions for subjects of further broadcasts are solicited and should be addressed to the American Public Health Association, 450 Seventh Ave., New York, N. Y.

The list of speakers and topics were published in the July issue.

PUBLIC HEALTH ADMINISTRATION

Hartford, Conn. — For economy reasons, the 1931 and 1932 records of this city of 170,120 population in 1932 are printed in one report. Ordinance requirements specify a report to the Court of Common Council in March, and such a report was made each year in manuscript form. Among the readjustments since the previous report are noted the transfer of the isolation hospital to the Board of Public Welfare where it is operated as a unit of the municipal hospital. The Board of Health laboratory is housed in this hospital, beside the hospital laboratory, and does the bacteriology and serology work for the institution. Hartford received honorable mention in the U. S. Chamber of Commerce Health Conservation Contest.

The first death from diphtheria in three years occurred in 1932. This was an adult, and the possibility of diphtheria seems to have been overlooked by the attending physician. The death rate from tuberculosis was 50.05 in 1932 as compared with 65.6 the previous year.

Edmonton, Alberta—In 1932, this city of 78,387 recorded a death rate of 7.9 as compared with 6.4 the previous year. The area of the city is 26,520 acres, including 1,000 acres of water. Hence there are some three persons per acre. The school enrollment numbered 18,353, while 2,340 births gave a rate of 19.5. An infant mortality rate of 44.2 is creditable. There were only 3 cases of diphtheria with no deaths. Diphtheria immunizations by official organizations numbered 1,514. Two well baby clinics are held each week in the city.

New Britain—The 1932 health department report indicates that in no previous year has the health record of this industrial city equalled that of the year reported. A general death rate of 7.5, an infant mortality rate of 54.3, and a tuberculosis rate of 60 are noteworthy. Whooping cough cases numbered 530 with 3 deaths, however, in contrast with 119 cases and 1 death the previous year.

Due to economic conditions, the scope of the dental clinic, originally for school children, increased to serve adults referred by the Mutual Aid Association and the Welfare Department. This clinic is located in the City Hall. The report concludes with recommendations for an isolation hospital, for municipal collection of refuse, and for the transfer of collection of garbage expenditures from the health department.

Brookline, Mass.—In 1932, Brookline, with an estimated population of 49,560, reported a birth rate of 9.04, a death rate of 11.18, and an infant mortality rate of 46.9 per 1,000 births. Diseases of the heart (146) and cancer (82) lead the list of causes of death. Seven cases of diphtheria with one death occurred during the year. Since 1922, 8,974 children have been immunized against diphtheria—672 having been protected last year.

A table showing improvement in the milk supply since 1925 is of interest. The average bacteria count per c.c. has dropped from 118,495 in 1925 to 8,944 for market milk; from 39,022 to 5,501 for Grade A; from 52,975 to 2,049 for Special milk, and from 6,860 to 1,392 for Certified milk. The per capita milk consumption is .98 pint, a figure

somewhat lower than for previous years.

A city-wide attempt was made to eradicate ragweed, the pollen of which causes "hay fever" during early fall months. Inspectors, while making a house to house search for fly and mosquito breeding places, made note of places where ragweed was found growing. Property owners were notified and coöperated in destroying the weed. A detail of welfare labor and a truck under a health department inspector was assigned to the task of aiding in the prompt destruction and removal of the weed. This work will be continued as a part of the 1933 program.

Brookline was awarded first place in the U. S. Chamber of Commerce Health Conservation Contest for cities within the 20,000 to 50,000 population group. The city health bulletin, published quarterly, is distributed by the Police Department to every house in town.

Attleboro, Mass.—Attleboro, with an estimated population of 22,187, reports a death rate of 12.8 per 1,000, with heart disease (49), and cancer (33) leading the list of causes of death for 1932. In 1931, a local survey showed 66.6 per cent of the school population and 60.8 per cent of the preschool group immune to diphtheria. In 1932, 515 children were immunized, and of these 333 were of preschool age.

The Chamber of Commerce, through its Health Committee, sponsored a campaign urging the use of more pasteurized milk. A regulation requiring pasteurization or certification of all milk sold in the city was adopted during the year, but will not be immediately enforced because of financial difficulties. All tuberculous cows are being removed from herds supplying the city with milk.

The year 1932 marks the tenth year of the Health Camp for undernourished boys, funds for the camp being furnished through the Community Chest. As a result of the examination of a large group of undernourished children by the health department, 40 boys were enrolled in this six-week camp. The maximum gain in weight was 23¾ lb.; the minimum 4¾ lb. Statistical tables and reports of the various bureaus conclude this 24-page report.

Warwick, R. I.—The second annual report of Warwick, for the year 1932–1933, is well printed, but on glossy paper, with appropriate headings and sub-headings in dark print to facilitate reading. Charts, graphs and pictures aid in making this a well balanced report.

Opening with a historical sketch of the town, which was settled in 1642, the report follows the general outline of the appraisal form for rural health work of the American Public Health Association. The city scored 765 out of 1,000 possible points, as compared with 711 for the previous year. An organization chart and a detailed list of the duties of various members of the health department are of interest.

Based on an estimated population of 25,329 for 1932, the city reports a birth rate of 15.6, a death rate of 11.4 and an infant mortality rate of 73.2. With the exception of scarlet fever, pneumonia and septic sore throat, all communicable diseases in the city showed a decrease in number of cases during the year. The tuberculosis rate dropped 14 points—from 57.4 in 1931 to 43.4 in 1932.

Of the 396 births, 55 per cent occurred in homes attended by physicians; 41 per cent in hospitals, and only 4 per cent were attended by midwives. This is a well written, compact report of 33 pages.

Lorain County General Health District—According to the 1932 annual report of the Lorain County (Ohio) General Health District, the population

of the area served is 40,305. The death rate was 11.4, an increase of 1.8 over the previous year. A total of 2,131 cases of communicable diseases was reported to the health department, the largest number in the history of the department. There were 5 cases of tularemia reported as associated with unprotected handling of wild rabbits. A total of 2,032 visits was made by staff members to the cases of communicable disease, and 341 visits to suspects. During the year 1,040 vaccinations or revaccinations were given.

The Blue Ribbon Program is used in schools. There were 6,154 children enrolled in the schools in 1932. A total of 5,838 defects was found; 2,329 defects were corrected, and 1,796 children received the award of Blue Ribbons.

In 1931, the daily consumption of milk was 1,400 gallons, with 75 per cent pasteurized. During 1932, only 1,300 gallons of milk per day were consumed and the proportion pasteurized was 71 per cent.

The laboratory made a total of 4,086 examinations, an increase being noted as largely due to communicable disease work, and the increased use of facilities by physicians of the county.

An active program in health education was carried on during the year; formal talks were given to Parent-Teacher Associations; 500 copies of the 1931 annual report were printed and distributed. More than 26,000 pieces of mimeographed material were printed and distributed. Booths were set up at both the Wellington and Elyria fairs.

The per capita cost of the health department from county and state funds was 54 cents.

LABORATORY

VALUE OF CULTURE TESTS IN THE DIAGNOSIS OF DIPHTHERIA*

HAZEL M. HATFIELD, M.D., AND ALICE G. MANN

Bureau of Laboratories, New York City Health Department

THE question has arisen as to the advisability of continuing to use routine cultures as an aid in the diagnosis of suspected diphtheria. The fundamental diphtheria culture work of Dr. William H. Park in the early years of the problem led to the establishment of this test as the accepted means of diagnosis and of guidance to necessary public health control measures. It is now in world-wide use and has increased in volume from year to year to an enormous extent.

The virulence test—a necessary concomitant of the microscopic test—is complicated and requires a number of days; the microscopic examination is relatively simple and quick. Except in the unusual case, therefore, the latter test stands alone as a guide to the public health authorities and to the physician.

With the introduction of diphtheria immunization on a large scale, however, the problem of diphtheria control work undoubtedly enters a new phase and the value of the routine culture examination should be re-appraised.

The very excellent studies made by Godfrey of the influence of diphtheria immunizations on diphtheria mortality indicate that at least 30 per cent of young children must be immunized before a significant reduction in the diphtheria death rate is effected. Immunization work on a big scale has been carried forward in New York City since 1929 and it is estimated that 36 per cent of New York children under six years of age have now been immunized against diphtheria.

With this large and increasing immune child population one would logically expect a decrease, not only in the diphtheria morbidity and mortality, but in the amount of culture work sent into the laboratory for examination.

As a matter of fact, we find that, since the middle of 1929, the number

TABLE I

Diphtheria Morbidity		*Diphtheria Mortality per 100,000 of Population*			
1925	9,051	1925	663	rate	10.49
1926	7,531	1926	477	rate	7.39
1927	13,507	1927	717	rate	10.90
1928	10,776	1928	642	rate	9.57
1929	8,548	1929	463	rate	6.77
1930	3,794	1930	198	rate	2.84
1931	3,999	1931	186	rate	2.62

* Read before the Laboratory Section of the American Public Health Association at the Sixty-first Annual Meeting in Washington, D. C., October 25, 1932.

of cases reported has always been well below the expected number. The mortality figures also show a marked drop. These facts are shown more fully in Table I.

The culture work sent in for diphtheria diagnosis has shown no corresponding decrease in volume. A study of Table II shows that there was a decided drop in 1930 but the figures for 1931 and 1932 again show an upward trend. The primary cultures for 1927, 1928 and 1929 are much higher in number than those for 1930, 1931 and 1932, but the totals of all the diphtheria culture examinations for 1930, 1931 and 1932 are again approaching the totals for the peak years of 1927, 1928 and 1929. For the same years (1927 to 1931) the census shows a moderate but more or less steady decrease in the total child population under 5 years of age. (The figures for the 6-year group are not obtainable.)

TABLE II

DIPHTHERIA CULTURE EXAMINATIONS

	Primary		*Unsatis-*					
	Positive	*Negative*	*factory*	*Total*	*Trial*	*School*	*Laters*	*Total*
1925.....	5,338	40,066	789	46,193	10,290	1,302	63,426	121,211
1926.....	3,548	36,492	827	40,867	4,056	451	72,890	118,264
1927.....	7,898	55,087	834	63,819	5,643	2,552	117,868	189,982
1928.....	6,198	49,164	4,560	59,922	4,763	1,428	131,786	197,899
1929.....	5,064	44,185	2,821	52,070	2,757	1,324	105,528	161,679
1930.....	2,093	33,096	1,212	36,401	428	261	73,943	111,033
1931.....	2,947	30,116	2,085	35,148	1,169	313	100,722	137,352
1932.....	3,272	31,273	1,936	36,481	714	1,380	129,829	168,404

In Table II it becomes apparent that the increased totals for 1931 and 1932 are due very largely to the increased numbers of later cultures. And this brings us to the question of carriers and then to a consideration of the effect of a large immune population upon the presence of virulent versus non-virulent diphtheria organisms in the throats of these carriers. Has the carrier the same significance and importance now as in the days before immunization work was begun and should the physician still consider it the best practice to send in a culture from every case that even remotely might be diphtheria? May it not be true that more immune individuals harbor the diphtheria bacillus and, if so, will the organism more likely be non-virulent? If this presumption should prove to be true, a positive diphtheria report may readily confuse the diagnosis and thus deprive the patient of proper medication—substituting for it a dose of antitoxin which the patient may not need and, if the patient survives, putting on record another carrier whose particular strain of diphtheria organism eventually proves to be non-virulent.

Having in mind the above considerations, an attempt has been made to determine the type of case giving a positive primary culture compared with the type of case giving a negative primary culture. Data have also been obtained regarding previous immunization of the positive cases. Lastly, a study has been made of the virulence of the diphtheria strains so isolated.

Positive primary cultures were selected at random, the physician contacted in each case for pertinent data and the culture subjected to virulence test. These findings have been summarized in Table III.

TABLE III

POSITIVE DIPHTHERIA CULTURES IN RELATION TO TYPE OF CASE AND VIRULENCE DETERMINATION

Type of case	No. of cases	Under 6 yrs.	6-16 yrs.	Adult	Exposure		Immunization				Virulence	
					Yes	?	Yes	Partial	No	?	Pos.	Neg.
Clinically diphtheria	18*	7	8	3	4	14	4	0	13	1	6	12
Clinically not diphtheria	12	8	2	2	0	12	2	3	†6	1	4	8
Routine(camp, institution, hospitals)	9	5	4	0	0	9	‡5	1	3	0	0	9
Trials (contacts)	4	3	1	0	4	0	0	0	3	1	1	3

* One case (of membranous croup) died. All the other cases recovered.
† One of these cases had received a first dose of T.A.T. six days before illness began.
‡ Of these five children, one had had diphtheria and four had had T.A.T. One had given a negative Schick.

In comparison with the positive cases tabulated above, the clinical diagnosis in 19 cases having a negative culture are stated as follows:

1 diphtheria
6 tonsilitis
2 spasmodic croup
1 croup
1 Vincent's infection of the mouth
1 acute pharyngitis
1 septic sore throat
4 rhinitis (one purulent)
1 acute laryngitis with stridor
1 post-tonsillectomy condition

The positive cultures classified as virulent or non-virulent in Table III have been further correlated with the history of immunization in each case with the results shown in Table IV.

In conjunction with the virulence table, a number of cases are cited because of their unusual features:

1. A child of 21 months was admitted to the hospital on the third day of illness with a diagnosis of membranous croup. There was a so-called typical laryngeal membrane. Fifteen thousand units of antitoxin was given intramuscularly and 10,000 units intravenously on admission. Four cultures taken on admission—2 from the throat, 1 from the nose and 1 from the pharynx—all showed a morphologically

TABLE IV

VIRULENCE FINDINGS IN RELATION TO IMMUNIZATION

Type of Case	Virulent		Immunization			
	Yes	No	Yes	Partial	No	?
Clinically diphtheria	6	–	1	0	4	1
	–	12	2	0	10	0
Clinically not diphtheria	4	–	1 slight	1	2	0
	–	8	1	2	4	1
Routine camp institution hospital	0	–	0	0	0	0
	–	9	5	1	3	0
Trials (contacts)	1	–	0	0	1	0
	–	3	0	0	2	1

typical diphtheria bacillus. The child died 2 days later. On virulence test, however, all 4 cultures proved to be non-virulent in guinea-pigs of proved susceptibility.

2. In a boarding-home for poor children, a 2-year old child became ill with very moderate symptoms, fever and a suggestion of a membrane, slightly indicative of diphtheria. The child had never been immunized and was ill only a day and a half. A throat culture was positive and the culture was virulent. *But,* of the 5 other children in the home and in contact with the patient, none of whom had been immunized, one other child was ill with a typical follicular tonsillitis and had a negative throat culture, and two had positive throat cultures which were non-virulent. The child with tonsillitis gave a very strong Schick reaction. Incidentally, the two positive contacts continued to be positive and were released from quarantine as carriers only after their inclusion in this special study had proved them to be non-virulent.

3. A culture from a child with a temperature of 104 and large, congested tonsils was found morphologically positive for diphtheria. The patient was recovered in 24 hours. This child had a history of repeated sore throats and plans were under way to have a tonsillectomy performed. There was no membrane. Six days prior to onset of illness the child had received his first dose of T.A.T. at the Health Department. The physician felt very sure that this was not a diphtheritic infection and was extremely annoyed at the routine quarantine restrictions. This culture proved to be non-virulent.

4. A patient with a typical case of diphtheria, a positive throat culture and with a residual paralysis of the soft palate and nasal voice was found to be the carrier of a non-virulent strain.

5. A child of 4 years, after a month of hospitalization for treatment for hematuria, developed a running nose and "cold." A routine culture was morphologically positive for diphtheria but was non-virulent on further test.

A summary of the virulence work performed in the Health Department Laboratory, exclusive of those tested in the Willard Parker Hospital, shows the following:

TABLE V

SUMMARY OF ROUTINE VIRULENCE FINDINGS

Year	*Virulent*	*Non-virulent*	*Total*	*Child Population Under 5 Years*
1927	48	44	92	553,000
1928	31	50	81	551,000
1929	11	86	97	548,000
1930	8	63	71	536,000
1931	7	129	136	531,000
1932 (9 months)	8	147	155	Figures not obtainable

The facts here adduced tend to show that there has been a shift in the diphtheria situation. This is borne out by the laboratory data. There has not been a reduction in the laboratory tests sent in at all commensurate with the immunity work accomplished. The question arises as to how far the physicians are justified in sending cultures for diphtheria examination and at what point the natural barriers of more or less universal immunizations will obviate the demand for laboratory tests on this big scale. At what point will the great expense of this work no longer be justified? And, much more

important, will it be true that, if the number of carriers of non-virulent diphtheria bacilli increases markedly as the immunity work progresses—a situation at least suggested by the above facts—will it not be true that a positive laboratory report will confuse the diagnosis and cause to be treated as diphtheria many cases of streptococcal, influenzal and other type infections? Under these new conditions a positive culture would become merely a presumptive indication that the case was one of diphtheria and should not of itself cause quarantine unless the case clinically would justify such a diagnosis.

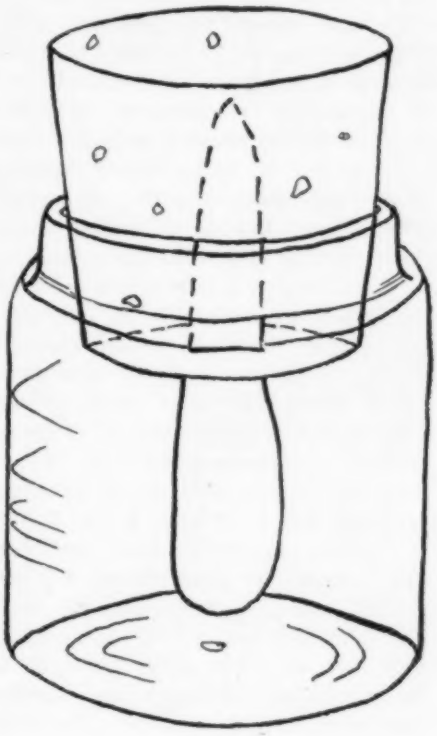
When will the carrier cease to be more than a remotely potential menace and when may the laboratory expect to rid itself of an amount of microscopic examinations which gives no indication of dropping away spontaneously?

A CONVENIENT FECES SPECIMEN CONTAINER

M. FROBISHER, JR.

The Eastern Health District Laboratory, The Johns Hopkins University, School of Hygiene and Public Health, Baltimore, Md.

IN obtaining specimens of feces for bacteriological examination it is often the practice to leave with the patient a small bottle or other container with the request that the specimen be put therein. The patient is many times left to devise a means of actually transferring a suitable portion of the fecal deposit into the container and the results are frequently unsatisfactory. Either the patient is not sufficiently ingenious to meet the situation and solves the problem by presenting a tomato can with an entire stool or else loses interest and fails to save a specimen. The use of a teaspoon or kitchen knife is inadvisable on sanitary grounds, for esthetic reasons and because of the possibility of introducing pathogens into the specimen from an outside source—possibly from some other carrier in the family.



A sterile wooden spatula is sometimes sent with the specimen container. This is frequently mislaid, suitable dis-

posal may be difficult and contamination or infection from the spatula during handling may occur.

An outfit was devised to avoid these disadvantages and is now in use in this laboratory. It consists simply of a 2 ounce, wide-mouth glass bottle with a cork stopper. A wooden tongue blade is cut into halves and one end of each piece is whittled to a sharp, flat point which is thrust firmly into a cut in the narrow end of the cork, the cut in the cork having previously been made with a paring knife. The cork is then fitted into the bottle and the whole sterilized in the hot air oven at 170 C. for 2 hours.

A good grade of cork or a rubber stopper must be used in order to avoid leakage if pressure develops. If a preserving solution is used, sterilization may be accomplished in steam.

A slightly more expensive modification of this outfit may be made from sheet metal. The wooden paddle is replaced by a piece of metal, and this may be fastened with a few drops of solder (necessitating steam sterilization) to the inside of a metal clamp--or screw-cover, very much in the same manner as small brushes are supplied in cans of certain brands of automobile "touch-up" paint. The possibility of bactericidal or bacteriostatic effects due to the metal must be taken into consideration before adopting such a device. Much will depend on the distance, time and temperatures involved in transporting the material to the laboratory. Both types of paddle can be used more than once. Metal paddles can be made spoon-shaped to facilitate the collection of liquid material.

In collecting the feces specimen the spatula always remains with the bottle, it is not touched by anyone and no disposal or esthetic problem arises.

VITAL STATISTICS

Diphtheria Mortality in Large Cities of the United States in 1932—Reports from 93 cities in the United States, showing the number of diphtheria deaths recorded in 1932, presents a pretty good index of the diphtheria situation during the last year.

Among the ten cities with the lowest diphtheria death rates were five (Albany, Grand Rapids, South Bend, Utica, and Yonkers) which escaped recording a single death rate from diphtheria in 1932. The five cities with the next lowest rates were St. Paul (0.3), Seattle (0.3), Newark (0.4), Syracuse (0.5), and New Haven (0.6).

The ten cities with the highest diphtheria mortality were Dallas (16.3), Knoxville (15.2), Peoria (12.6), Fort Worth (11.7), Lowell (11.0), Wichita (9.2); Camden (8.4), Des Moines (8.2), Oklahoma City (8.2), and Memphis (7.6).

Geographical arrangement of the cities finds those in the Middle Atlantic states with an aggregate diphtheria mortality of 2.5 per 100,000 in 1932, thereby improving their excellent record of 2.8 in 1931 and easily maintaining their ranking as the group having the lowest diphtheria mortality. Three of the five American cities that did not register a single death from diphtheria in 1932 are in this geographic division. It is suggestive of the fact that several cities in this group were among the first in the country to put into practical application modern methods of diphtheria control. New York, for the third consecutive year, reported a very low rate—one of 2.9, this being slightly higher than the 1931 figure of 2.6 but identical with the 1930 rate of 2.9. Special attention may be directed to the low rate for 1932 in Philadelphia (0.8), the best record yet achieved by any American city with a population of more than a million. The City of Camden, for the second year in succession, registered the highest diphtheria mortality rate of the cities in this group with a figure of 8.4 per 100,000.

The New England group again made a new low record (3.65). The Connecticut municipalities, led by New Haven, have had a notably smaller diphtheria mortality than the Massachusetts cities in recent years. Bridgeport, after several years of an intensive control campaign, made a particularly fine showing in 1932, the single diphtheria death reported being that of a nonresident. The diphtheria mortality rate of 4.2 in Boston was lower than for the year before (4.7) although not quite equalling its banner year 1930 when a rate of 2.9 was recorded. Lowell, however, experienced a considerable increase in diphtheria in 1932, showing a death rate of 11.0 in contrast to the figure of 5.0 in 1931. Worcester, after experiencing diphtheria mortality of 1.5 per 100,000 population in 1930 and 4.0 in 1931, recorded a rate of 6.0 in 1932.

Several of the cities in the South Atlantic states showed notable improvement over preceding years. Among these were Richmond, which recorded the low diphtheria death rate of 1.1 in 1932 in contrast to 5.4 in the preceding year; Baltimore with rates of 1.8 and 2.8 in 1932 and 1931 respectively; and Wilmington with 1.9 and 6.6 for the same two years. The three Florida cities, Tampa (4.6), Jacksonville (7.1), and Miami (7.3) on the other hand, reported rates that indicate an excessive prevalence of diphtheria. It might also be noted that

Miami in 1932 recorded more than double the diphtheria rate in New York.

The East North Central group of cities which in 1925–1929 had the highest average diphtheria mortality of any section of the country, has made the greatest relative improvement and now with a combined death rate of 2.7, its diphtheria record ranks second only to the Middle Atlantic Cities, which had a rate of 2.5 in 1932. A notable decrease in diphtheria fatalities was shown by Cleveland which had a diphtheria death rate of 1.4 in 1932, 1.2 in 1931, and 4.1 in 1930, after having experienced a rate of 15.3 for the five-year period 1925–1929. Detroit and Chicago also have recorded spectacular reductions in diphtheria mortality in recent years; Chicago, especially, has made remarkable strides in bettering its record, dropping to a diphtheria death rate of 1.9 in 1932 as compared with 6.2 in 1931 and 12.2 in 1930. Dayton and Fort Wayne with diphtheria death rates of 7.7 and 5.8, respectively, seem to have had an unusual prevalence of the disease; Peoria, with a death rate of 12.6, apparently had a real epidemic.

The East South Central cities, as a whole, did not show much change from the high rates of the preceding year. The cities, as a group, had a diphtheria mortality of 6.1 in 1932 as compared with 6.9 in 1931 and 5.0 in 1930.

Six of the eight West South Central cities showed an increase in 1932 over 1931, and the group as a whole had an average rate of 8.2 in 1932, as against 5.9 in 1931. Fort Worth and Dallas, with diphtheria death rates of 11.7 and 16.3, respectively, seem to have been the chief sufferers from this disease. It is curious that diphtheria should now be so relatively prevalent in this region, since from 1900 to 1920 the cities of the Southwest had considerably less diphtheria mortality than the rest of the country.

The group of cities in the Mountain and Pacific States showed an increase in the diphtheria rate from 2.7 for 1931 to 3.4 for 1932; Tacoma, the only city in this group to record a reduction, registered rates of 0.9 in 1932 and 8.3 in 1931. Seattle, with a rate of 0.3, and Salt Lake City with a rate of 0.7, had the best records of this group in 1932.—*J.A.M.A.* 100:1595–1597 (May 20), 1933.

Provisional Figures for Live Births, Infant Mortality, and Stillbirths in the Birth Registration Area (Exclusive of Massachusetts and Utah) in Continental United States, 1932—The Bureau of the Census announced that in the birth registration area of continental United States (exclusive of Massachusetts and Utah) during the calendar year 1932 there were 1,961,618 births, 113,661 deaths of infants under one year of age, and 75,175 stillbirths. These figures are equivalent to a birth rate of 17.3 per 1,000 population, an infant mortality rate of 57.9 per 1,000 live births, and a stillbirth rate of 3.8 per 100 live births. The corresponding final rates for 1931 for the same area were 18.0, 61.9, and 3.8, respectively.

The birth rate of 17.3 for the 44 states and the District of Columbia covered by this press release is the lowest since the establishment of the Federal birth registration area in 1915. The infant mortality rate (57.9) is also lower than for any previous year. The stillbirth rate (3.8) is the same as for 1931 and has varied but very little since 1922, in which year the annual collection of stillbirth records was begun.

The urban part of the birth registration area of 1932, except Massachusetts and Utah, includes 864 cities, towns, and townships, with an estimated total population of 54,979,000 on July 1, 1932. In this urban area there were 896,334 births, 51,136 deaths of

infants under one year of age, and 35,317 stillbirths. The rural part had an estimated population of 58,367,000, among which there were 1,065,284 births, 62,525 infant deaths, and 39,858 stillbirths. In the urban portion of the area the birth rate was 16.3 per 1,000 population, the infant mortality rate 57.1 per 1,000 live births, and the stillbirth rate 3.9 per 100 live births. The corresponding rates for the rural portion of the area were 18.3, 58.7 and 3.7 respectively.

Naturally, the greatest number of births occurred in the most populous states—New York, having 198,353, Pennsylvania, 168,533, Illinois, 111,512, and Ohio, 101,043. The highest birth rates, however, were for New Mexico, 28.0, North and South Carolina, each 23.7, and Alabama, 23.5. Nevada, Wyoming, and Delaware had the smallest number of births, 1,244, 4,231, and 4,264, respectively, but the states having the lowest birth rates were California and Oregon, each with 13.1, Nevada and Washington, each with 13.4, and Illinois, with a rate of 14.4.

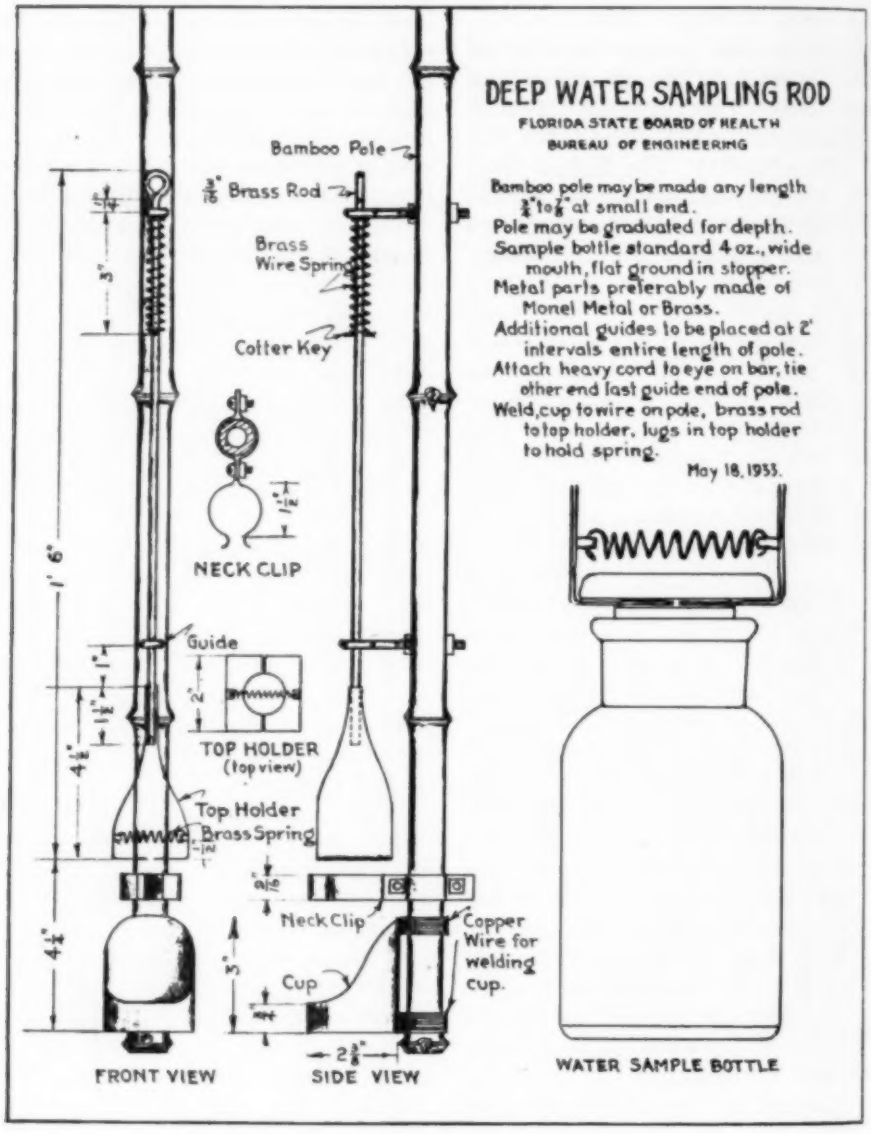
The greatest number of deaths of infants under one year of age occurred in New York (10,446), Pennsylvania (10,107), and Ohio (5,961). The highest infant mortality rate was for New Mexico (113.6), which was the only state with a rate higher than 100.0 per 1,000 live births. Other states with high infant mortality rates were Arizona (94.5), Colorado (73.2), District of Columbia (72.9), South Carolina (76.6), and West Virginia (75.3). —U. S. Department of Commerce, Bureau of the Census. *Press Release.*

PUBLIC HEALTH ENGINEERING

A DEEP WATER SAMPLING ROD

LOUVA G. LENERT

Chief Engineer, Bureau of Engineering, Florida State Board of Health, Jacksonville, Fla.


DEEP WATER SAMPLING ROD
FLORIDA STATE BOARD OF HEALTH
BUREAU OF ENGINEERING
Bamboo pole may be made any length
¼" to ⅞" at small end.
Pole may be graduated for depth.
Sample bottle standard 4 oz., wide mouth, flat ground in stopper.
Metal parts preferably made of Monel Metal or Brass.
Additional guides to be placed at 2' intervals entire length of pole.
Attach heavy cord to eye on bar, tie other end last guide end of pole.
Weld, cup to wire on pole, brass rod to top holder, lugs in top holder to hold spring.
May 18, 1933.
Bamboo Pole
3/16" Brass Rod
Brass Wire Spring
Cotter Key
NECK CLIP
Guide
TOP HOLDER (top view)
Top Holder Brass Spring
Neck Clip
Copper Wire for welding cup.
Cup
1' 6"
3"
4½"
4½"
2⅜"
FRONT VIEW
SIDE VIEW
WATER SAMPLE BOTTLE

THE first requisite of shellfish sanitation is that the growing areas from which they are taken must be approved by the state agency having jurisdiction over same. To determine the fitness of these areas for shellfish production requires extensive physical surveys of the shore line and contributing drainage area. When this survey indicates considerable pollution of the water a bacteriological survey of the waters over the producing areas becomes necessary. Samples of water are taken under different wind and tidal variations to determine their effect upon the distribution of pollution. Surface samples in some cases may give a fair index of actual conditions, but bottom samples are more indicative of the condition of the growing area itself.

The deep water sampling rod illustrated was first developed by C. D. Hopkins, M.D., for taking samples of water from Hillsborough Bay below the City of Tampa, Fla., at depths varying from two to twelve feet. Very rapid progress can be made with this device which is operated as follows:

All sampling is done over the side of a boat. Upon nearing the point where a sample is desired the sterile cover is removed from the top of the water sample bottle, which is then inserted in the cup at the bottom of the rod, being held firmly in place by the neck-clip. The top holder is expanded and allowed to slip into the groove of the ground glass stopper as is shown in the large scale illustration. The lugs and spring which serve to keep the top holder closed also prevent the stopper from slipping out. The stopper is then given a half turn to be certain it is not stuck tight, being careful not to permit the fingers to touch the top of the bottle.

As the boat arrives at the appointed spot, the operator plunges the rod forward in the direction of travel and down to the depth desired. When the rod reaches the vertical position the cord attached to the eye of the top holding bar is pulled momentarily to permit filling of the bottle and is then released. The rod is then brought into the boat and the bottle is removed to the carrying case and a new bottle is inserted for the next sample.

CHILD HYGIENE

REPORT OF THE PRESCHOOL CENTER PROGRAM OF THE CLEVELAND CHILD HEALTH ASSOCIATION

E. V. THIEHOFF, M.A., M.D.

Acting Director, Cleveland Child Health Association, Cleveland, Ohio

REALIZING that the health and welfare of the infants in Cleveland are well provided for in the infant welfare stations of the Cleveland Division of Health and that the school children are given health supervision in the public and parochial schools, but that little attention is being given to the preschool child, the Cleveland Child Health Association decided to set up a program of preschool centers as a step toward meeting the existing needs for this age group. In the summer of 1932 six centers were established in various community centers on a volunteer basis. The success of these centers was so pronounced that in the fall of 1932 it was decided to establish some of them on a permanent basis.

The first problem to be considered was space and maintenance. The room space, light and heat, and janitor service are now provided free of charge by such agencies as the Division of Health, community social settlements, Associated Charities, and church organizations.

The matter of equipment was considered next. The Mayor's Committee on Recreation gave the centers a quantity of used toys, including a slide and sandbox, at the time the centers were opened in the summer. A public school sent a supply of toys to one of the centers. A storage warehouse company gave a piano to one of the centers. The Division of Health loaned a scale for the weighing of the children.

Financial aid and food contributions also have been received.

Service contributions are secured from volunteer workers, including nursery school instructors, nutritionists, doctors, dentists, and nurses. Carfare expenses of volunteers are met by the Association and the doctors, dentists, and some of the nurses receive a small honorarium for their services. The trained preschool instructors, one in charge of each center, are the only workers on a salary basis.

The preschool centers which are functioning now may be divided into three groups:

Group I. A center established some years ago at a Health District Station, which gives medical supervision, including examination, vaccination, immunization, and close follow-up work in the homes by nurses.

Group II. Four centers established by the Cleveland Child Health Association which offer a health and play program, including recreation, habit training, nutrition, medical and dental examinations, and follow-up work.

Group III. Three centers established by interested groups with whom the Cleveland Child Health Association coöperates in securing medical and dental examinations and in supplementing their nutrition program.

In Group II the children follow regular daily routines of free play, supervised play, toilet routine, mid-session lunch, and rest period. The supervised play includes rhythms, songs, games, story hour, rhymes, and simple handicraft. The centers are open for two and one-half hours daily, either morning or afternoon.

RECREATION AND HABIT TRAINING

The preschool instructor is interested not only in the physical aspects of the child, but in the mental and emotional as well. It is her purpose to try to give the child as ideal an atmosphere in which to develop as possible. She sets up daily routines for the children which are simple. For example, there is the daily toilet routine, during which the child learns to use the paper, flush the toilet, and wash and dry his hands. He does not always want to wash his hands; but he soon learns this must be done. After a short time he grows to like routines as they give him a sense of security. In fact certain procedures become so fixed that it is almost impossible to change them.

The children learn that when they play hard, they are too tired to enjoy a luncheon and so must rest before eating. The period may be from fifteen minutes to half an hour, depending on how hard they have been playing. During the rest period the worker can observe many difficulties such as thumb sucking, which can be overcome during the rest period by asking the child to put his hands behind his head.

When difficulties arise, the teacher tries to help the child meet and solve his own problems, rather than to solve them for him. She tries to answer all his questions satisfactorily and intelligently. In speaking she is careful not to use words which are above the child. The children are told the toys are in the center for everyone and must be shared; but when one child has a toy it is his until he drops it for another. They are allowed to make their own group rules. The worker tries to get the child to form his own opinions. If he does not agree with her, where possible, she lets him proceed and learn the result of his opinion.

Many of the children in the centers come from desolate homes. A pretty, neat room is essential to them, as it gives a new outlook and instills in them the desire for the beautiful. The children in these centers learn the nursery rhymes and hear the stories and songs which are the right of all children but which are often denied to children of this economic group. They are given opportunities to express themselves through music and rhymes.

NUTRITION

Cod liver oil is given daily to the children during the winter months. The mid-session lunch has included milk, tomato juice, cream soups, cereals, crackers, whole wheat bread, and bananas and milk.

In connection with the lunches the teacher has the opportunity to teach table manners, politeness, etc. She does this not so much by telling the children what is proper as by doing the proper thing herself and allowing them to imitate her. During the lunches it is possible also to teach the children the value of certain foods and to interest the children in them.

A nutritionist weighs the children weekly and keeps individual graphs to show gain or loss in weight. She discusses food habits and menus with the mothers.

HEALTH SUPERVISION

Daily inspection is carried out to detect symptoms of illness, and all suspects are excluded. Attention is given to personal cleanliness, and instruction in health habits are inculcated in the daily program.

A quantity of tooth brushes were secured for the centers. A routine of brushing the teeth is carried on.

At stated intervals of about six months the children are given complete physical examinations, and yearly dental examinations. A public health nurse assists in these examinations and makes follow-up calls in the homes, referring cases for correction to private doctors

and dentists or to the proper dispensaries and clinics.

COST OF CENTERS

The average monthly expenditures are $70 per center. On the basis of an average attendance of 20 children a day at a center, the cost per child is $3.50 a month or sixteen cents a day.

Social rating reports are secured for each child from the Social Service Clearing House of Cleveland. As the centers are free to the children attending, each child accepted is one who is or has recently been active at one of the recognized social service agencies.

REPORT OF AN EXPERIMENT DETERMINING THE EFFECT OF WEATHER ON CHILDREN'S SLEEP

THIS experiment was conducted by Eunice Pierce, who is one of the trained instructors at a preschool center of the Cleveland Child Health Association.

It was conducted in four nursery schools located in Cleveland—Western Reserve, Hanna, Mather, and Wade—and extended over a period of six months, in order to determine the effect of weather on the sleep of children.

The time the children went to sleep was tabulated and again the time they woke up, thus giving the actual length of the naps. The weather, temperature, and rain charts issued monthly by the government were used and correlated with the length of the sleep periods. Sixty-four children, thirty-two boys and thirty-two girls, were observed in the course of the experiment.

The results pointed to the following conclusions:

1. That the length of time children sleep is variable.
2. That weather affects the length of time children sleep.
3. That children sleep noticeably longer on rainy days.
4. That nap lengths drop tremendously on the first day of severe weather change, either hot or cold.
5. That the sleep tends to go back toward the normal if the extreme cold or hot level lasts for more than one day.
6. That boys as an average tend to sleep longer than girls.
7. That sleep falls off markedly preceding an illness.
8. That the 2 and 3-year olds do not sleep longer than the 4 and 5-year olds as an average.
9. That the sleep graphs of the children from different sections of the city followed much the same curves.

INDUSTRIAL HYGIENE

Psychrometer Has Two Wet Bulbs—Precise measurement of humidity from zero to nearly saturation, and at air temperatures up to 150° F., is possible with an improved psychrometer developed at the Bureau of Standards. Two wet bulbs are used in this instrument.

The wick which supplies water to the wet bulb passes through a perforated tube which serves as a first wet bulb of the instrument. The second wet bulb is of the ordinary type. By this means the water supply for the second wet bulb is pre-cooled to the evaporation temperature.

Tests covering the range of temperature from zero to 150° F. show that the precision of humidity measurement depends only on the precision of the thermometers used.—*Heating, Piping & Air Conditioning*, V, 4:206 (Apr.), 1933.

L. G.

The Presence of Lead Dust and Fumes in the Air of Streets, Automobile Repair Shops, and Industrial Establishments of Large Cities—A survey to determine the amount of lead dust and fumes present in the air of city streets, automobile repair shops, and non-lead-using industrial establishments was made in 14 of the largest cities in the United States. The Greenburg-Smith Impinger apparatus was used as the air sampling instrument. An average volume of about 8 cubic meters of air at the breathing level was taken in each sample.

In all, 78 samples were analyzed; 25 in automobile repair shops, 28 in streets, and the remaining 25 in various types of industrial plants in which lead compounds were not handled. The air of automobile repair shops disclosed an average of 0.13 mg. of lead per 10 cubic meters with a maximum of 1.11 mg. The average for the street samples was 0.09 with a maximum of 0.34, and the non-lead-using industries averaged 0.10 with a maximum of 0.35. Eighty-six per cent of all the samples in the three sampling places contained less than 0.2 mg. of lead in 10 cubic meters of air.—J. J. Bloomfield and H. S. Isbel, *J. Indust. Hyg.*, XV, 3:144–149 (Mar.), 1933.

L. G.

Safety Regulations for Refrigeration Equipment—The following safety regulations have been recommended by the authors in order to minimize hazards from automatic refrigeration equipment:

(1) The quantity of refrigerant in any one apparatus or system shall not exceed 20 lb.

(2) There shall be at all critical points pipes leading to the outside air and provided with fusible plugs which will open at temperatures in excess of 160° F., and thus permit the escape of the entire charge of refrigerant.—Yandell Henderson and Walter V. Babson, *J. Indust. Hyg.*, XV, 3:154–155 (Mar.), 1933.

L. G.

Noise in Heating and Air Conditioning: Where It Occurs and How It Is Prevented—In the practice of air conditioning and ventilation the engineer is often faced with the problem of designing and constructing a system practically free of noise. Such installations require care in the design of the individual parts of the installation. In some cases it is necessary to use special treatment in the construction of machinery foundations and it

may become desirable to treat the machinery room itself with noise absorbent material. The prevention of noise in the ducts may often be accomplished by proper fan selection, correct duct design, paying particular attention to air velocities obtained, and to the use of non-noise and vibration conducting connections at certain vital places in the system. Air baffles properly placed have considerable value in this connection.

This paper describes the use of one of the new noise measuring devices for the estimation of the noise produced at the air filters in a radio studio ventilation system when various arrangements of air filters were utilized. The paper does not provide a basis for broad conclusions in noise prevention but points out this valuable use of noise measuring device in the ventilating art.—Samuel R. Lewis, *Heating, Piping and Air Conditioning*, V, 4:198–199 (Apr.), 1933.

L. G.

The Effect of Viosterol on the Excretion of Lead—It is known that small doses of viosterol favor calcium deposition while larger doses of this substance favor calcium excretion. Since the metabolism of lead and of calcium are affected by the same influences, experiments designed to determine the effect of large doses of viosterol on lead excretion in cats were carried out.

In the first experiment six cats were each given 100 mg. of lead in the form of the acetate in 25 c.c. of milk daily for 49 days. The lead dosage was then discontinued for 21 days to permit deposition of lead in the bones. At the end of this period 3 cats were given 20 drops of viosterol daily in 25 c.c. of milk, while three others were used as controls. The viosterol cats were found to excrete about 10 times more lead than those of the control group.

In the second experiment six cats were given 100 mg. of lead daily in the form of carbonate which was sprinkled on the food. This was continued for 21 days when two of the animals had convulsions and died. Lead administration to the remaining cats was discontinued for 10 days. At the end of this period feces were collected and analyzed for lead in 3-day periods. This 3-day sample was used as a control for lead excretion. Twenty drops of viosterol were then added to the diet in a small amount of milk at the end of the first 3-day period. The average daily excretion of lead per cat rose sharply after viosterol was begun and reached a peak in the fourth period when the amount of lead excreted per cat was 37 times greater than it had been in the control period.

The investigations suggest that viosterol may prove an acceptable form of therapy in cases of lead poisoning after exposure to lead has ceased.—Frederick B. Flinn and Adelaide Ross Smith, *J. Indust. Hyg.*, XV, 3:156–159 (May), 1933. L. G.

Sulfur Dioxide in Pittsburgh Air—Sulfur dioxide determinations were made in the city of Pittsburgh as a part of the Mellon Institute's air pollution investigations. The results of the survey showed that the amount of sulfur dioxide present in Pittsburgh air is too small to cause concern from a hygienic standpoint. The average concentration of sulfur dioxide in 1932 was 0.14 parts per million.

It was found that the concentration of sulfur dioxide varied with the amount of fog in the atmosphere. On all days when the fog cleared by afternoon there was a corresponding sulfur dioxide decrease. On a day when the fog did not clear, the sulfur dioxide concentration was found to rise.—Carlisle Schade, *J. Indust. Hyg.*, XV, 3:150–153 (May), 1933.

L. G.

The Roentgenological Aspects of Pneumoconiosis and Its Medico-Legal Aspects—In this article the authors question the wisdom of designating the appearance of pneumoconiosis by any term denoting numerical stages of progress and suggest the designation of the appearance by terms which imply their pathological nature. The following classification of silicotic appearances based upon known pathological changes has been suggested in place of the old numerical stages:

1. Peribronchial-perivascular-lymph node predominance. This may be rapid or slow, usually the latter.
2. Early interstitial predominance. This may be extremely or moderately rapid, depending upon the silica intake. It may or may not have an associated slight nodular appearance.
3. Advanced interstitial predominance.
4. Nodular predominance. Rapidly or slowly progressing.
5. Advanced diffuse or terminal fibrosis.
   - Conglomerate nodular type.
   - Interstitial type.
   - Massive fibrotic type.

The importance of roentgenology as a means of attack and defense in medico-legal questions in silicosis compensation cases is brought out. The creation of a competent Medical Board in each state is recommended in order to act on all claims for disability from pneumoconiosis. It would then be desirable to have each state pass compensation laws as nearly uniform in essential details as possible.—Henry K. Pancoast and Eugene P. Pendergrass, *J. Indust. Hyg.*, XV, 3:117–135 (May), 1933. L. G.

Toxicity of Osmium Tetroxide (Osmic Acid)—Metallic osmium is an entirely innocuous substance but when heated in air or oxygen, or acted upon by oxidizing agents, osmium tetroxide is readily formed. This highly volatile osmium tetroxide has been the cause of numerous cases of severe poisoning.

Experimental work with white rabbits showed osmium tetroxide to be definitely toxic in concentrations of 250 mg., 500 mg., and 1 gm. in 190 liters of air. The time of exposure was 30 minutes. All of the animals succumbed. Those receiving 250 mg. survived for 4 days on an average, while the average survival time of those exposed to 1 gm. was but 30 hours.

The objective symptoms produced are the result of the action of irritant vapor on the exposed mucous surfaces and skin, upon the respiratory tract, and indirectly also on the kidneys. Autopsies showed the entire lung to be dark red with scattered irregular areas of purple. Dark discolorations were found on the epithelial lining of the bronchi and bronchioles. This staining was more marked in the trachea, the epiglottis, and the interior of the larynx, all of which were jet black.

The effect of osmium on the eyeball was also studied.

Protection from osmium tetroxide may be afforded by a reliable downdraft, preferably through a spray of 10 per cent sodium hydroxide to absorb the oxide. Where minute quantities are encountered, protection of the eyes by air-tight goggles is sufficient. In higher concentrations a mask with an "all service" canister affords an adequate safeguard.—F. R. Brunot, *J. Indust. Hyg.*, XV, 3:136–143 (May), 1933. L. G.

Obtaining Comfort Conditions by Controlled Radiation from Electrically Heated Walls—This investigation showed that by heating large surfaces such as the walls, ceiling or floor of a room to low temperatures (80–120° F.) comfort conditions may be maintained with relatively low air temperature (60° F.), thus resulting in a saving of heat. The power consump-

tion for the heating panels varied from 5.3 to 16.1 watts per square foot. A remarkably uniform temperature was found to prevail within the room as a result of the heating method presented. —L. W. Schade. Presented at the summer convention of the American Institute of Electrical Engineers, Chicago, Ill., June 26–30, 1933.

L. G.

Physiologic Changes During Exposure to Ionized Air—The influence of ionized air upon total metabolism, respiration, pulse rate, blood pressure and body temperature, was studied on human subjects under (a) basal conditions, (b) 2–4 hours after breakfast, and (c) 3–5 hours after a light lunch. Sixty persons in a total of 141 experiments were exposed for an hour or more to air containing from 5,000 to 1,500,000 small ions per cubic centimeter after a preliminary resting period of 1–2 hours in normal air.

The ionized air appeared to exert a normalizing influence upon the human mechanism by increasing or decreasing the physiologic processes under study.

The physiologic response to positive or negative ions did not differ greatly but certain differences were observed in the sensation produced by the two kinds of ions. The respiration of positive ions resulted in headaches and irritation of the nose and throat in some cases while negative ions predisposed to relaxation and other sensations of desirable character.—C. P. Yaglou, A. D. Brandt, and L. C. Benjamin. Presented at the Semi-Annual Meeting of the American Society of Heating and Ventilating Engineers, Detroit, Mich., June, 1933.

L. G.

Carbon Monoxide Distribution in Relation to the Heating and Ventilation of a One-Floor Garage—A study of the carbon monoxide distribution was made in a garage utilizing various methods of ventilation. The air supply was made through large conical diffusers located near the ceiling for downward ventilation and located 4 inches above the floor level for upward ventilation.

The results showed that upward ventilation results in a lower concentration of carbon monoxide at the breathing line and a lower temperature above the breathing line than does downward ventilation.

Assuming the average rate of carbon monoxide production of an idling car to be 35 cubic feet per hour, an air change of 350,000 cubic feet per hour per car would be required to keep the carbon monoxide concentration down to one part in 10,000 parts of air.—F. C. Houghten and Paul McDermott. Presented at the Semi-Annual Meeting of the American Society of Heating and Ventilating Engineers, Detroit, Mich., June, 1933. L. G.

The Application of the Eupatheoscope for Measuring the Performance of Direct Radiators and Convectors in Terms of Equivalent Temperature — The eupatheoscope, which is an instrument used as an index of the combined effects of air motion, radiation and convection, was used to determine whether the steam condensation of direct radiators and convectors could be correlated with the equivalent temperature as indicated by the eupathescope.

The study showed that the eupatheoscope served as a means of ranking various heating units in the order of the relative heating effects produced. The heating effect is not materially greater than the total heat output as measured by steam condensation under given standard conditions, and the authors feel that the practice of adding a large proportion to the condensation rating in order to provide for heating effect cannot be justified.—A. C. Willard, A. P.

Kratz, and N. K. Fahnestock. Presented at the Semi-Annual Meeting of the American Society of Heating and Ventilating Engineers, Detroit, Mich., June, 1933. L. G.

Necessity for Bureau of Occupational Diseases, Connecticut—Connecticut ranks third among the states in the percentage of her working population employed in manufacturing and mechanical industries. According to the 1930 Census, 309,465 persons, or 46 per cent of her working population, are so employed.

According to "Occupation Hazards and Diagnostic Signs," such workers are exposed to 700 hazardous occupations, some 500 of which are potentially dangerous to the health of the employees in Connecticut. The Bureau of Occupational Diseases has classified the hazardous materials, processes, and conditions into about 70 groups. At the same time, several thousand plants in the State were classified into about 100 industrial groups. This classification is so arranged that it may be correlated with that of the U. S. Census and of the National Council on Workmen's Compensation. The Bureau has made 1,373 field trips and 717 studies and surveys in various industries in the State (list attached). Each plant has received a confidential report of the Bureau's findings, including physical and chemical determinations of the working environment, with recommendations for the elimination or control of hazards found. Thus the health of several thousand workers was directly affected.

The report continues at some length with the conditions found; improvements noted; the centralization of information; industry's relationship to the industrial health problem, also that of the health department; the occupational disease program; the effect of industrial environment on health—in which Dublin has shown that, age for age, the mortality rates of the industrial group run from one-and-a-half times to more than double the rates in non-hazardous occupations, and with a difference in life expectancy of seven years; occupational diseases vs. accidents, and the greater cost of the former; the necessity for control; the similarity to epidemics; the problem of new substances and processes; and essential control measures.

As it is the purpose of the State Department of Health to afford protection to all of the people of the State, the work of such a Bureau must be continued as an integral part of that duty. Forty-six per cent of the working population, embracing one-sixth of the population of the State, and representing a large income-producing portion, is not to be discriminated against and deprived of an essential protection. (Appendices attached.)—Connecticut State Department of Health (Hartford), 1933, 20 mimeographed pages plus Appendices. E. R. H.

Indices of Air Change and Air Distribution—The present ventilation code of the American Society of Heating and Ventilating Engineers makes use of the carbon dioxide content of the air of the environment under test as an index of air change. And variations in the CO_2 content as an index of air distribution. Realizing that human beings liberate heat and moisture in addition to CO_2, the authors of this paper have made a critical study of changes in air temperature, moisture content and CO_2 content in an effort to determine the most satisfactory index for future use.

Tests were conducted in a psychrometric chamber on 10 subjects. The calculated values of air change determined from CO_2 and moisture increase indicated a somewhat higher air change than that actually supplied by the ventilating system. The dis-

crepancies noted were not significant. The use of the dry-bulb temperature rise as an index is precluded because a large part of the liberated heat is absorbed by the surrounding walls and objects.

The determination of air change from the increase in moisture content is recommended because of the rapidity and simplicity of the method and because of the greater consistency shown in the determinations.

It is suggested that an air motion of from 20 to 50 ft. per minute, determined by the kata thermometer, be used as an index of satisfactory air distribution.—F. C. Houghten and J. L. Blackshaw, *Heating, Piping and Air Conditioning*, V, 6:324–330 (May), 1933. L. G.

Occupational Disease Compensation, Pennsylvania—The conclusions of the special Commission are first given, which were signed by all of its 10 members, composed of physicians, representatives of self-insurers, child health, underwriters, miners, and employers, with T. Henry Walnut, Philadelphia attorney, as chairman.

In brief, the Commission found that compensation for occupational diseases could be set up constitutionally; that a separate act would be required with its own rules for procedures; that special provisions were necessary to fit the slow development and course of occupational diseases; that assistance of scientists would be essential as well as a schedule listing of special diseases; that a general statement of the occupations concerned is also necessary; that definite articles should be drawn up to protect the fund as well as employers; that silicosis and/or miners' asthma would present the greatest difficulties in administrative problems; that a board of experts should therefore be appointed whose findings would be conclusive; that it would be impossible to estimate the cost of such a scheme accurately in advance; that the wisdom of an occupational disease enactment was outside of the commission's pronouncement; and that a survey should be made by the U. S. Public Health Service of the exact nature and prevalence of chronic incapacitating miners' asthma.

Scope and cost, legal aspects, definitions, a survey of acts in other states, rules established by judicial decisions, reasons for omitting additional diseases from the suggested schedule, and recommendation that a medical board be set up as an integral part of the administrative body, are among the features further discussed. There is also a special report of the legal committee and of the committee on scope and cost, also much other material of coördinate value.—Pennsylvania Commission on Compensation for Industrial Disease to Governor Pinchot, Harrisburg), 1933, 96 pp. E. R. H.

Industrial Medicine in France—A Decree issued by the French Minister of Education on April 11, 1933, provides for the establishment of an Institute of Industrial Hygiene and Medicine at the Paris School of Medicine in place of the Industrial Hygiene Institute.

The object of the new foundation is to provide training in occupational hygiene and pathology for doctors who intend to practise in industry. It will contain a Hygiene Section, a Medical Section devoted to clinical study of occupational diseases, and a Toxicological Section.

The Institute will give instruction in the form of two introductory courses on industrial hygiene and industrial medicine, and an advanced course on industrial hygiene, medicine, and toxicology. In addition to lectures on theory, there will be opportunity for practical work, visits to factories, examination of workers, etc.—*Indust. & Labour Inf.*, XLVI, 7:177 (May 15), 1933. E. R. H.

Obituary—Sir Arthur Whitelegge—Benjamin Arthur Whitelegge died April 25, 1933, at the ripe age of 80 years. He was born in Tideswell, Derbyshire, graduated in medicine in 1876 from the University College, and was a member of the Council of the Royal Sanitary Institute with which he had been associated for over 50 years.

Dr. Whitelegge will be chiefly remembered by our readers as His Majesty's Chief (Medical) Inspector of Factories at the Home Office, which post he held from 1896 to 1917, in which latter year he was followed by Sir Thomas Legge. Under Whitelegge's leadership the Factory Department was greatly increased in both personnel and influence.

Considered a master of English, he was also the author of a compact textbook on Hygiene and Public Health which ran through 17 editions—the latter editions in co-authorship with Sir George Newman. Dr. Newman credits him with being " the man who established intimate relationship between the factory medical service and the public health service."—*J. Royal San. Inst.* (May), 1933, Supplement p. 198. Also a fine tribute (with portrait) by Sir George Newman in *Lancet*, V, 5723:990 (May 6), 1933. E. R. H.

Silicosis and Tuberculosis Among Miners of the Tri-State District of Oklahoma, Kansas, and Missouri—I.—This Report is for the year ending June 30, 1928, and is the first of a proposed series dealing with the data concerned. An earlier investigation, begun in 1923, by the U. S. Bureau of Mines and completed in 1925, showed less dust in the mines of this, the Picher district, than in the Joplin district, reported in 1915 (Technical Paper No. 105). The present investigation is the result of an agreement between the Metropolitan Life Insurance Company, the Bureau of Mines and the mining companies. The first year's proceeds were expended in constructing and equipping the clinic.

Of 7,722 examined at Picher in the year ending June, 1928, 1,617 (21.3 per cent) were diagnosed as having silicosis; 267, silicosis plus tuberculosis; and 104, tuberculosis alone.

An analysis of examination-records, subjective symptoms, physical examinations, X-ray findings, prognosis and treatment of silicosis is given. Appendix I gives the technic of radiographic work; II, the symptoms of silicosis by stages; III, the pathology of silicosis, and IV, the Picher mining district, with map.

Prognosis in early silicosis is considered good if the patient can be removed from a dusty occupation and placed in the open, but advance of the disease, especially with the superaddition of tuberculosis, renders the outlook less favorable. In the Picher field, pneumonia is a frequent complication, from which the death rate is high. Treatment recommended is removal from the dust to " open air." For complicating tuberculosis, a high, dry, warm climate is recommended. The men do much better when they go to the Southwest.—R. R. Sayers, F. V. Meriwether, A. J. Lanza, and W. W. Adams, U. S. Bureau of Mines, Technical Paper 545, 1933, 30 pp. (illus.).

Paper No. II, for the year ending June 30, 1929, shows some reduction from the number of cases of silicosis found in the previous year, also in the number complicated with tuberculosis, but the number of cases of tuberculosis rose. Apparently, a total of 154 of the 2,110 essentially negative cases of the previous year had progressed to first-stage silicosis, 2 to first-stage silicosis plus tuberculosis, 10 to early tuberculosis, 1 to moderately advanced tuberculosis, and 1 to advanced tuberculosis. Similar progressions (figures given) was noted for others who were previously

reported in the early stages of silicosis.

The etiology of silicosis is discussed in relation to age, personal history, past history of diseases and defects, and of previous occupations. Subjective symptoms of the disease, and the findings of physical examinations, X-rays and laboratory, are also discussed in some detail.

The action of silica dust in the formation of fibrosis probably continues for 12 to 18 months provided a non-dusty occupation is sought and infection is avoided. Prevention at the mines is discussed, also removal to the high, dry climate of the Southwest. Patients do better with a limited amount of daily exercise.—F. V. Meriwether, R. R. Sayers, and A. J. Lanza, U. S. Bureau of Mines, Technical Paper No. 552, 1933, 28 pp. E. R. H.

Occupational Disease Decisions—1. A painter who sprays automobiles with wood alcohol in a small, poorly ventilated room and, as a result, suffers a disabling illness, is disabled, not by an occupational disease, but by an accidental personal injury, and under the Oklahoma workmen's compensation act is entitled to compensation.—*J.A.M.A.* (Medicolegal), (June 3), 1933, p. 1894.

2. A laborer working under the direction of a county surveyor was overcome by smoke while burning brush along a country road. He applied for compensation for disability but died before the claim was considered. After investigation the claim was approved.—*Monitor,* Ohio Indust. Comm., (June), 1933, p. 780.

3. An employee lifted one end of a gasoline engine weighing 300 pounds. He quit work immediately and the next day was operated upon for acute appendicitis. The claim for compensation was approved, the Commission holding that appendicitis can be brought on by a strain or an injury to the right side of the abdomen.—*Monitor,* Ohio Indust. Comm., (June), 1933, p. 780.

4. A painter ordered to paint a fence was compelled to tear away vines and shrubbery by which he came in contact with poison ivy. He was disabled for almost a month. His claim was allowed by the Commission as an injury claim.—*Monitor,* Ohio Indust. Comm., (June), 1933, p. 780.

5. An employee carried sacks of stucco, weighing 100 pounds, up a flight of 22 steps. After carrying 8 such sacks he became dizzy and fell down the stairs. Two days later a physician found him suffering from acute cardiac dilation. His claim was considered meritorious and allowed.—*Monitor,* Ohio Indust. Comm., (June), 1933, p. 781. E. R. H.

Ventilation of Factories and Workshops—Conditions are stated for satisfactory ventilation including importance of air movement, cooling power, and the effects of impurities. The standards involve ventilation itself, air movement, temperature, and humidity.

Natural ventilation which pertains to every workroom, to some extent, requires efficient openings of adequate size and suitability (which are discussed and illustrated). Much space is next given to the use of fans with illustrations of the propeller, pressure, and circulating types.

Mechanical ventilation systems of the extraction, plenum and combined types are described and illustrated. There is a note upon heating and a brief description of the instruments and apparatus for ascertaining atmospheric conditions. — Great Britain, Home Office, Welfare Pamphlet No. 5, 2d Ed., 51 pp., 1933. Price 1s. (British Library of Information, 270 Madison Ave., New York.) E. R. H.

FOOD AND NUTRITION

Copper, Iron and Manganese Content of Fish—Twenty species of fresh water and salt water fish were used in the experiment. The average copper content of both the salt water and fresh water fish was about the same, or 2.5 mg. per kilo. of moist material. The sunfish showed the lowest average copper content (1.4 mg. per kilo. of moist material), while the ling was the highest (4.1 mg). Salt water fish was found to contain approximately 12 per cent more iron than fresh water fish. Cod fish and sunfish showed the lowest amount of iron (3.4 mg. per kilo. of moist material) while ling showed the greatest amount (9.6 mg.). Fresh water fish contained more manganese than salt water fish. The various species of fish muscle contain about 0.1 mg. to 0.4 mg. per kilo. of moist material. Species of fish with dark colored tissue contain approximately 75 per cent more iron than the species with the light colored tissue.—Thomas B. Parks and Embree R. Rose, *J. Nutrition*, 6:95 (Jan.), 1933.

Vitamin G (B_2) in Fruits—A study was made of fresh apples, avocados, oranges, and pears for vitamin G. Young albino rats, 21 days old and weighing 35 to 40 gm., were placed in metal cages with raised screen floors, and given distilled water and a basal diet deficient in vitamin G. At the end of two weeks, each animal was given a daily weighed portion of the material to be tested in addition to the basal diet. The apples used were Arkansas grown Delicious. Experiments were also made with Washington grown Delicious but the results were similar to the former. Bartlett pears, California oranges and avocado (Fuerte variety) were the other fruits tested. Apples and oranges were found to be poorer in vitamin G than such root vegetables as beets, carrots, potatoes, and turnips. Avocados and pears were found to be better sources of the vitamin than the root vegetables but poorer than the leafy ones. Oranges and apples each contained about one-fifth Bourquin-Sherman unit per gram of the fresh edible fruit; avocados contained about two-thirds unit per gram, while pears were found to contain one unit per gram.—Paul L. Day and William J. Darby, *J. Home Econ.*, 25: 319 (Apr.), 1933.

The Chemical Nature of Vitamin C—The authors here undertake to show that hexuronic acid itself and not a contaminant is responsible for the antiscorbutic activity. In accordance with recent chemical analysis, this term is dropped and for it "ascorbic acid" is substituted. Adrenal glands are the only materials suitable for large scale preparations of ascorbic acid. Owing to the difficulty in securing these, investigation was made of vegetable sources. One apparently has been found in the Hungarian red pepper, *Capsicum annuum*, which shows a high reducing power. A method is given for preparation of the ascorbic acid from these red peppers following which the authors finally obtained yellow crystals melting at 187 to 189°. Guinea pigs were protected against scurvy for 65 days with 0.5 mg. of this substance. On recrystallization, crystals were obtained melting sharply at 192°, the product corresponding to a pure preparation of ascorbic acid. In order to prove that contaminants were not responsible for the biological activity, a

derivative, monoacetone-ascorbic acid, was prepared. This monoacetone derivative is only partly protective but ascorbic acid recovered from the derivative is completely protective. The test with different substances for a 65 day period on 250 to 350 gm. animals showed full protection was secured with 1.5 c.c. lemon juice added to the basal diet and when the animals were given 1 mg. ascorbic acid prepared from the acetone derivative, or 0.5 mg. ascorbic acid prepared from the paprika. Very good results were also secured with 0.5 c.c. paprika juice, with 1 mg. monoacetone-ascorbic acid and with 0.5 mg. ascorbic acid, recrystallized five times, obtained from adrenal glands. In an experiment to determine the stores of ascorbic acid in the adrenal glands of animals, it was found that this rapidly disappears when the animals are on a vitamin C-free diet.—Joseph Louis Svirbely and Albert Szent-Györgyl, *Biochem. J.*, 27:279, 1933.

The Effect of Cooking on the Vitamin A and C Content of Fresh and Dried Apricots—This study involves the effect of cooking on the retention of vitamin C in dried fruits—peaches, prunes, and apricots—both sulfured and unsulfured, supplementing previous reports from this laboratory showing the protective value of sulfuring on vitamin C, and to a lesser extent, on vitamin A. The question was raised by Nelson and Jones of the U. S. Department of Agriculture, who, in unpublished work, observed that the effect of sulfuring would be of little practical value since cooking tended to destroy vitamin C. This experiment aims to answer two questions, the effect of cooking in the case of sulfured and unsulfured apricots and the effect of processing and re-sulfuring. The fruit was cooked by bringing the temperature to 85° C in 15 minutes and maintaining that temperature for 5 minutes. The technique was that followed in previous experiments with a total feeding period of 60 days. Comparisons of the vitamin C content of the raw and cooked fresh apricots show in every instance that the raw product is much more antiscorbutic than the cooked, 15 gm. of the fresh raw apricot affording full protection against scurvy, as against more than 20 gm. for the cooked fresh fruit, indicating a probable loss of 30 to 50 per cent of the vitamin C through cooking.

Comparison was made between the raw and cooked, sulfured and sundried apricots, and the same fruit after storage at room temperature for one year and the unsulfured, sundried and dehydrated. In the case of the sulfured and sundried, there was a retention of 94 to 100 per cent of both raw and cooked. The same after a year's storage showed only 40 per cent retention. The raw, unsulfured, sundried and dehydrated showed no retention of vitamin C. Both raw and cooked, sulfured and sundried showed approximately a 50 per cent retention. In the storage experiment, there was a loss of 31 per cent of the sulfur dioxide as well as 60 per cent of its antiscorbutic value. After cooking there was a further loss of more than 50 per cent of the sulfur dioxide but no parallel loss of vitamin C.

Fifteen and 25 gm. respectively of the raw fresh and cooked fresh apricot are regarded as protective. Since the equivalent of 16 gm., either raw or cooked, in the case of sulfured fruit furnishes practically complete protection, it is concluded that the full vitamin value of the fresh apricot is retained. Sulfured apricots held at room temperature for 5 months and then commercially processed show a loss of approximately 50 per cent of vitamin C, as against practically no loss of this vitamin when stored at 0° C, showing that freezing storage is necessary to preserve vitamin C. In the case of

vitamin A, less variation is shown between the raw and cooked sulfured fruits. According to the results of the experiment, 26 to 41 per cent of vitamin A is preserved in the raw sulfured fruit, and 25 to 33 per cent in the same fruit cooked. Vitamin A is retained to the extent of 16 to 28 per cent in the raw unsulfured dried fruit, against 9 to 20 per cent, cooked. Again attention is called to the unusually high vitamin A content of apricots, which is attributed to their pigmentation by carotene, reported by Morgan and Madsen (*J. Nutrition*, 6:83 [Jan.], 1933—see following abstract). The fact that cooked fresh fruit shows a higher vitamin A value is attributed to better intestinal utilization either because of enzyme destruction or better carotene absorption. The calculated losses of vitamin A due to the drying process are 59 to 74 per cent in sulfured, 76 to 82 per cent in unsulfured, and 71 to 82 per cent in processed fruit.—Agnes Fay Morgan, Anna Field and P. F. Nichols, *J. Agr. Res.*, 46:841 (May 1), 1933.

Mottled Enamel Produced by Water Containing Sodium Fluoride—While McCollum and coworkers in 1925 reported the unusual growth of the upper incisors of rats fed sodium fluoride, credit is given to Smith, Lantz and Smith as the first to associate experimental fluorasis in the rat with the condition known as mottled enamel. A so-called "mottled enamel area" exists at Conway, S. C., and the municipal water supply has been shown to be high in fluorine—six parts per million. The object of this experiment was to compare the changes in the teeth of white rats fed small quantities of fluorine in the drinking water with those produced by natural water from a mottled enamel area. Experimental rats were placed on a leached casein and cornstarch diet supplemented with yeast, cod liver oil and salt mixture, the latter contributing about 10 parts per million of fluorine to the diet. Groups of 6 rats were fed for about 100 days on this basal ration, the drinking water used in the various experiments being as follows:

Group 1, distilled water.

Group 2, municipal water supply of Conway, S. C., 10 times concentrated. This would make the fluorine content approximately 60 parts per million by the ferric chloride method of Churchill which was employed by the authors.

Group 3, synthetic water of the same composition as the concentrated Conway water except that it contained no fluorine.

Group 4, a similar synthetic water containing 150 p.p.m. of sodium fluoride (equivalent to about 68 p.p.m. of fluorine).

Group 5, distilled water plus 500 p.p.m. of sodium fluoride (equivalent to about 226 p.p.m. of fluorine).

Groups 1 and 3 (water containing no fluorine) grew normally and presented no evidence of disease. Teeth showed the normal orange color at all times. Groups 2 and 4 (water containing approximately 60 p.p.m. of fluorine, in the form of natural fluorine and added sodium fluoride, respectively) grew normally with the exception of the following gross pathological changes noted in the teeth: Within 10 days the normal orange color had disappeared from the labial surfaces of the lower incisors, which appeared whitish except for an opaque orange spot at the tip of each tooth. Within the next week they became a translucent white throughout. Within 52 days small brown spots appeared on the labial surfaces of these incisors. During the remainder of the feeding period these spots increased in number and gradually covered the entire surface of the teeth. Group 5 (distilled water containing 226 p.p.m. of fluorine as sodium fluoride) gained in weight 3 days, lost weight during the next week, and thereafter showed a more or less normal gain with the exception of one rat which died after 11 days' feeding. This experiment was

repeated with 20 rats and 16 of these died within 11 days, indicating that fluorine in these amounts has a distinct acute toxic effect. The surviving rats showed the same tooth changes as Groups 2 and 4, during the first 10 days but by the end of 52 days the teeth were chalky white and brittle and many of them had broken off at the tips or even at the gums, and the opposing teeth had become abnormally long, tending to curve upward and penetrate the palate.

The work confirms in general the conclusions of Smith, Lantz, and Smith that endemic tooth mottling is definitely due to fluorine in the drinking water. —W. H. Sebrell, H. T. Dean, E. Elvove, and R. P. Breaux, *Pub. Health Rep.*, 48:437 (April 28), 1933.

A Comparison of Apricots and Their Carotene Equivalent as Sources of Vitamin A—Royal apricots, having a deep yellow flesh, were chosen for the test. The carotene content of fresh frozen, sulfured sundried and unsulfured sundried apricots was determined by pyridine and by acetone ether extraction followed by colorimetric estimation. The fresh frozen apricots which were used for the vitamin tests were found to have a maximum of 0.102 mg. carotene per gram of fruit solids compared with 0.066 and 0.060 mg. for the sulfured and unsulfured samples, indicating losses of 36 and 41 per cent of the carotenoid values during drying. A daily dose of 15 mg. of the fresh fruit gave an increase of 3 gm. body weight per week. Twice the equivalent of this amount must be fed as either sulfured or unsulfured sundried apricots in order to obtain about the same amount of growth. In nearly all cases the unsulfured dried apricots yielded growth in proportion to carotene intake which was distinctly lower than the other sources of carotene used. —Agnes Fay Morgan and Evelyn O. Madsen, *J. Nutrition*, 6:83 (Jan.), 1933.

PUBLIC HEALTH NURSING*

Health Education Conference at Ann Arbor—The tone of the conference on health education, held at Ann Arbor under the auspices of the American Child Health Association, was definitely educational. There were no suggestions as to what the doctor or nurse as such should do, but what should be taught for the good of the child.

No one knows definitely yet what health education practices prove best for the child. There was much discussion pro and con as to the value of weighing and measuring school children and as to whether the school or community should be responsible for milk, hot lunches, filling children's teeth, etc. Some felt that unless an activity was purely educational (in some cases for demonstration, perhaps) it had no place in the budget of school authorities.

The question of the abiding values of Gold Star and Blue Ribbon Campaigns was argued again pro and con.

Health Education is rapidly changing from formal education to progressive education in which practice rather than theory is stressed. In assisting teachers, efforts are made first to have them develop a point of view, then to guide experience. The old conception of health education was to teach how to prevent sickness, now it is to promote healthful living. The content has been changed also: we used to give advice on what not to do, now we try to control the factors in the environment in which we live.

There was general agreement that there needs to be more research work done in the field of health education.

The League Meeting in Chicago—The National League of Nursing Education, which is composed of superintendents, instructors, supervisors, and all other nurses acting in a teaching capacity in nursing schools, held its 1933 annual meeting at the Drake Hotel in Chicago the week of June 19.

It was in 1893 at the World's Fair in Chicago that the League was formed under the original name of the American Society of Superintendents of Training Schools for Nurses and it seemed fitting that the 40th Anniversary of the League should be held at the time of the Century of Progress Exposition in Chicago.

It is significant that one whole day's program was devoted to a discussion of ways to improve obstetrical nursing. As a result of the discussion the American Nurses' Association and the League pledged themselves to make better obstetrical nursing a project for the coming year.

Another whole day of the program was devoted to a discussion of the need for psychiatric nursing. A map was displayed showing the distribution of graduate nurses in the psychiatric hospitals in the United States. Some states, like Minnesota and New York, made a good showing; others showed no trained nurses in any of the psychiatric hospitals.

One day of the League meeting was devoted to problems of state boards of nurse examiners.

One of the features of the program was the presentation of the Saunders Medal for distinguished service in nursing to Clara D. Noyes, R.N., National Director, American Red Cross Nursing Service, Washington, D. C., by

* Please send printed matter or other material relating to public health nursing to Eva F. MacDougall, 6 State House Annex, Indianapolis, Ind.

Dr. Malcolm T. MacEachern of the American College of Surgeons.

The N.O.P.H.N.—When the National Organization for Public Health Nursing was founded in 1912, there were fewer than 3,000 public health nurses in this country. Now there are approximately 20,000 and about 6,300 are members of the N.O.P.H.N. Every public health nurse in New Mexico is a member for 1933. Rhode Island comes next with an enrollment percentage of 96, District of Columbia ranks third with 87 per cent, Oklahoma and Iowa fourth and fifth with 72 and 69 per cent respectively. Michigan comes sixth with 68 per cent. Fourteen states are more than half enrolled and in half the states 40 per cent or more of the public health nurses are members of the Organization.

The N.O.P.H.N. is interesting because it is a national organization which includes both professional and lay-workers in its membership. The interest and support of a well informed citizen's group is considered to be an essential factor in the successful development of every public health nursing agency; it is this fact that accounts for the lay members.

In the list given below are recounted some of the accomplishments of the National Organization for Public Health Nursing during the past two years:

1. Published *Objectives of Public Health Nursing* and *Qualifications for Public Health Nurses for 1935*.

2. Prepared two books: a revised edition of the *Manual of Public Health Nursing* and *Principles and Practices of Public Health Nursing Including Cost Analysis*.

3. Took a "1931 Census of Public Health Nurses in the U. S. A."

4. Gave advisory and consultation service in the field in nearly all the states in the union.

5. Conducted social hygiene and tuberculosis institutes in over half the states and institutes for board members in more than a dozen states.

6. Published monthly the magazine *Public Health Nursing*, the only magazine in the world devoted solely to subjects related to public health nursing.

7. Maintained a vocational guidance and placement service in the Joint Vocational Service.

8. Gathered facts on the economic emergency which have been used to stabilize local public health nursing situations.

9. Carried on a nationwide correspondence of approximately 600 letters monthly.

10. Continued to recommend minimum requirements for post-graduate courses in public health nursing.

11. Conducted and published an annual public health nurse's salary study.

12. Offered special service to boards and committees through a lay staff member and, through her, also conducted an educational study program for them.

13. Prepared 13 bibliographies in relation to various aspects of public health nursing and made them available on request.

14. Continued to publish public health nursing record forms.

15. Continued the work of the School Nursing Section and published a special school nursing number of the magazine each September.

16. Continued the work of the Industrial Nursing Section and published material for industrial nurses; also prepared a book *Nursing in Industry* soon to be published.

17. Planned a survey of public health nursing throughout the country.

18. Developed and fostered relationships with many of the National Health Agencies in this country.

REFERENCES

Listening In, N.O.P.H.N. Releases in June, 1932, and May, 1933.

EDUCATION AND PUBLICITY*

Health Education at Indianapolis—Elsewhere in the *Journal* you will find the outline of the Health Education Section's program for the October convention at Indianapolis.

Under the title, "Organization of Adult Groups for Health Education," the first session will deal with the problem of health teaching for those members of the adult population who do not belong to service clubs, parent-teacher associations, church societies and other groups already organized and ready to welcome speakers on health subjects. Those who most need health teaching are least likely to be members of these organized groups. They need the methods of a class, meeting in at least four or five sessions. How can they be found, brought together in groups and held together long enough to learn some of the elementary facts about health? The speakers in this session will tell of methods used in reaching this section of the public.

"Retailing Health Information and Ideas" makes another approach to the problem of how to put salt on the bird's tail. First catch your bird, but how? In this session the whole question of distribution within a single city will be discussed. How do you find your market for health education? How do you cover it? Three hypothetical campaigns are to be outlined, all of them requiring well planned and thorough distribution.

Are there certain objectives on which all health organizations and health departments can unite in what they tell the public? Is it possible that the combined forces of the health agencies might bring about much stronger support for public health work? It is the aim of the panel session, in which six or seven leaders in public health will participate, to arrive at an agreement on one or more common objectives which might be made the basis for intensive health publicity during the coming year. Our joint session with the Vital Statistics Section will consider news values in statistics, with special attention to ways in which the significance of national statistics can be interpreted in relation to local situations.—Mary Swain Routzahn.

Again Education and Publicity Headquarters will be a feature of the Annual Meeting. Have you material for display? Have you ideas as to what should be displayed? Please write editor of this department.

A Century of Progress—Chicago has put on a splendid show. The strictly public health exhibits are few, but many other displays in the medical section of the Hall of Sciences will interest health workers. Here are some notes supplied by the exposition management:

The first X-ray photograph ever used in surgery—two months after the discovery was announced by Roentgen in 1895—is in the exhibit of the medical department of McGill University of Montreal, Canada, in the Medical Section of the science exhibits.

The display of the Medical Sciences visualizes the tremendous advance in the past century in the knowledge of the causes, detection, prevention and cure of human and animal diseases. Scientific medical institutions of England, France, Germany, Austria, Italy, Holland and Canada have coöperated with the American associations.

* Please address questions, samples of printed matter, criticism of anything which appears herein, etc., to Evart G. Routzahn, 130 East 22d St., New York, N. Y.

The transparent Man, from the Deutsches Hygiene Museum of Dresden, Germany, is a life size model, of transparent cellon, the interior of which is illuminated to show in rotation all the deep organs of the body.

Also in this exhibit are moving models of parts of the body which may be operated by the visitor, showing the action of joints, operation of the breathing apparatus, circulation of the blood, the larynx in different states, and horizontal sections of the body, shown in a life size model in eight parts.

The works of Louis Pasteur, pioneer of bacteriology and of Robert Koch, who discovered the tubercle bacillus, are shown in commemorative exhibits.

Structure and function of the nervous system are demonstrated by the Central Institute for Brain Research of Amsterdam, Holland.

An extensive exhibit of work in bacteriology and tropical diseases of man and animals is that of the Wellcome Research Institution of London. The Institution shows models of the floating laboratory presented to the Sudan government on the Nile and of the mobile field laboratory given the British War Office during the World War.

Progress of hospitals in the past century in America is shown by the American College of Surgeons. The American Medical Association uses dioramas, mechanical displays and transparencies to show the evolution of medical care. The American Pharmaceutical Association illustrates the evolution of medicine dispensing from an old-time pharmacy to actual demonstrations of modern prescription compounding, assays and chemical tests.

History of blood transfusion is shown by the use of actual instruments in the exhibit of the Cleveland Clinic Foundation. Physiological relations of the thyroid, pituitary, suprarenal and sex glands are shown by specimens, models and charts.

The discovery of appendicitis in the last century is shown by Harvard University and the Massachusetts General Hospital. The development of abdominal surgery and work on the treatment of pernicious anaemia are among other subjects of exhibits.

Motion pictures, wax models, transparent photographs and charts are used by the Mayo Foundation to illustrate work on goitre, diseases of the digestive tract and of the nervous system. A large electric thermometer enables visitors to take the temperature of their hands and a thermometer enables them to test their nerve steadiness.

Rehabilitation of the crippled child is the subject of the University of Chicago exhibit. Motion pictures show results of work on acute infantile paralysis. Models and photographs illustrate the possibilities of work on the spine.

The Georgia Warm Springs Foundation, for the study and treatment of infantile paralysis, founded and financed by President Franklin D. Roosevelt, exhibits photographs illustrating exercise and massage treatments for patients suffering from the results of the disease. A series of X-ray photographs of affected limbs show results of treatment.

Bright's disease is illustrated by specimens of organs and the relations between kidney disease and acute infections are shown by Marquette University and Milwaukee County Hospital.

The American Urological Association presents an exhibit on diseases of the urinary tract.

To demonstrate the fact that cancer is, to a great extent, curable if recognized and treated in early stages, is the purpose of the exhibits of the American Society for the Control of Cancer and of the New York City Cancer Committee. Influence of genetics on cancer is shown by the Otho S. A. Sprague Memorial Institute—University of Chicago—in records of 110,000 necropsies on mice in twenty-three years.

Importance of prenatal and post-natal care for babies is shown by the Maternity Association of New York. Questions and answers on maternal hygiene are shown by the Chicago Medical, Dental and Allied Service Women's Association.

The fight against tuberculosis is portrayed by the Chicago Municipal Tuberculosis Sanitarium and the Chicago Tuberculosis Institute.

Causes, prevention and treatment of rheumatism are shown by the American Committee for the Control of Rheumatism.

Care of the teeth and the progress of dental science are shown by the Chicago Centennial Dental Congress. Motion pictures, operating models, specimens, charts and transparencies are used to show methods of treatment and the relation of the teeth to the general health.

Relation of focal infections to systemic diseases is the subject of the exhibit of the University of Illinois and the Illinois Department of Public Health. The Chicago Board of Health shows the work for the control of preventable diseases in the city's past 100 years.

Loyola University, Chicago, shows a series of complete anatomical models. The University of Wisconsin presents the history of the pioneer work on gastric digestion, result of the observation 100 years ago of Alexis

St. Martin, whose digestive operations were visible as a result of a gunshot wound.

Health is represented in effective fashion in the social welfare section of the Hall of Social Sciences.

Public health and the medical sciences in general do not approach the German Hygiene Museum in graphic presentation. And in all the buildings we visited we noticed but a single use of the symbols or "fact-pictures" as developed so strikingly by Dr. Otto Neurath of the Social and Economic Museum, Vienna, for the presentation of statistical data.

Throughout the exposition light, color and form have been used to give settings for the displays, in addition to their large scale use outdoors in producing effects which delight the eye.

In the construction of scientific exhibits and those showing processes and products lavish use has been made of modern methods of graphic presentation. Many ideas may be taken over by the readers of the *Journal*, but naturally many of the forms used are possible because of funds available far beyond the resources of health and welfare agencies.

Much has been done to explain the exhibits to visitors. But largely the exhibitors overlooked the fairly recent studies which have been made in the museum field. And mere common sense would have bettered many exhibits in their audience contacts.

Typewritten labels were seen on elaborate, expensive scientific displays. Pages of *typewritten matter in capital letters* were seen. Signs, under glass, in small letters, all capitals, and above the eye level were used in an expensive commercial display.

Mechanical voices explained in many cases, but frequently the voice or the recording was not satisfactory. One of the successes was the easily recognized voice of Dr. W. W. Bauer in one of the booths of the American Medical Association.

"Do you want to learn something about the exhibits?" or "Are there any questions I could answer?" was the unfortunate and rather futile way in which some of the human explainers approached visitors. If they had started telling some interesting fact or idea, and had pointed to the exhibit many of the visitors would have listened gladly. Few of the explainers had a pointer to hold the attention of visitors and to direct attention to the particular detail which was being discussed. Good explainers had audiences.

We hope that every delegate to the A.P.H.A. meeting at Indianapolis in October will be able to add at least a day at the Century of Progress.

What Have You?—Anything you have written or published, or have read which might be used in explaining the importance of any public health activity? Anything which other health agencies might use, or chests and federations which must soon face the enormous job of raising funds to keep going the non-official health activities in many cities?

Case stories, facts, statistics? Reports of studies which reveal situations or needs, or point to trends?

Anything about results?

Almost unlimited quantities of such material can be used during the next six months—in press releases, by magazine and syndicate writers, for bulletins to local agencies. And he helps most who helps quickly.

Address Miss Mabel Ellis, editor, United Educational Program, 130 East 22d Street, New York.

If you have something which should be mentioned in this department of the *Journal* please send a copy also to Evart G. Routzahn, 130 East 22d Street, New York.

Again Behind the Front Lines—Last year a series of bulletins, "Behind the Front Lines," was issued for those wanting fresh data for educational presentation of health and welfare work. Those bulletins were prepared first for use in the fall and winter money-raising campaigns. Then much of the material was used in the year round publicity of chests and individual agencies.

A new supplemental series is being prepared for issue in August. Four or five of the new series will present public health material. Any public or private agency may use the material, which is suitable for printed matter, house organs, newspaper copy, talks, etc.

The copy is prepared by the United Educational Program of the National Social Work Council. The bulletins are available for 10 cents a copy through Community Chests and Councils, Inc., Graybar Building, New York. Ask for a list.

Sixty Is the Limit—The 1933 Institute on Public Health Education will be held Saturday, Sunday and Monday, October 7–9, at Indianapolis. The general theme will be The Psychology of Health Education. Write the A.P.H.A. for details. Make sure that it will give what you want before signing up. Then you won't take the place of someone else.

Broadcasting in Manitoba—May 5, 1933, the 54th in a series of radio talks was given by representatives of the Manitoba Department of Health and Public Welfare. Some of the titles follow:

"The Place of Health in School Education"; "Child Health" (interview between a mother and her physician about underweight in children); "The Significance of the Common Cold"; "How Communicable Diseases Are Spread"; "The Aftermath of Communicable Diseases"; "The History of Vaccination and Preventive Inoculation"; "Common Skin Diseases"; "Maternal Welfare"; "A Christmas Well and Happy"; "Health Conditions in 1932" (a newspaper reporter interviews a health official); "The Scope and Aims of Mental Hygiene"; "Public Health Nursing Problems" (emergency conditions); "First Aid and Home Nursing" (a series of conversations between Ellen, an 8th grade girl, and her Aunt Mary, a nurse); "Scarlet Fever"; "Food Hygiene"; "Rural Sanitation"; "Sanitation and Housing"; "Vital Statistics" (series of three on their why and wherefore); "Diphtheria Prevention" (series of 3).

A full list and single copies are available. Address Anna E. Wells, Health Education Service, Department of Health and Public Welfare, Winnipeg, Manitoba.

Institute for Visual Education—Many of our readers know something about the method of graphic presentation developed by Dr. Otto Neurath in the Social and Economic Museum, Vienna. The method—

reduces complicated facts to their bare essentials and transforms them into pictures—attractive modern symbols which everyone can understand.

The Neurath method is based on the theory that it is better for the average man or woman to remember simplified pictures than to forget detailed and intricate figures. The Neurath fact-pictures are so clear and striking that they can be comprehended at a glance and are far more easily remembered than figures in type. . . .

The Neurath charts have been widely used in Europe. American organizations, research workers and writers, however, have been seriously handicapped in using Dr. Neurath's method because of the difficulties and loss of time involved in ordering material from Vienna. An American agency is urgently called for which will make the Neurath technique applicable to American conditions, and charts readily available in this country.

An Organizing Committee for an Institute for Visual Education has been formed, and invites correspondence with those interested. Vital statistics are happily adapted to this striking form of presentation. Address Rudolf Modley, field secretary, 130 East 22d Street,

New York. Bertrand Brown of the Milbank Memorial Fund represents public health on the committee.

In the final organization we hope that a different name will be selected, since "visual education" means so much more in the school world in the United States than any single form of presentation of facts.

Health Examinations But a Part of a Whole—*The Health Examiner*, with the June, 1933, issue—

appears in a new form and under new auspices. Established in April, 1931, *The Health Examiner* has until the present been published by The Greater New York Committee on Health Examination. With this number the publication comes under the supervision of The New York Academy of Medicine, 2 East 103d St., New York City.

The events leading to the change in publication auspices reflect the growth of medical appreciation of the nature and significance of the health examination movement. *The Health Examiner* was created to propagate health examinations. Its first and early issues were devoted to the description of the technique in examining the apparently healthy individual. Many contributions from leaders of the medical profession were published, extolling the merits of the health examination. Some space and consideration were devoted to certain practical problems such as equipment, record keeping, follow-up, etc.

The editorial statement indicates a new approach to the health examination:

Time and accumulated experience, however, convinced the editorial board that the health examination idea could not effectively be promoted of and by itself. The examination of the apparently healthy individual is merely one phase of the practice of personal preventive medicine. Unless the health examination is made with this understanding, it is liable to prove an ineffective gesture, promising more than it could possibly achieve, and in the long run it would defeat the very ends at which it is aimed.

Dr. Iago Galdston, as a member of the editorial board, is largely responsible for the content of the magazine. Of considerable value to many public health workers. $1.00 a year; 10 cents a copy. Specimen copy free.

Emergency Relief Diet Demonstration—Already we have mentioned danger in demonstration of local relief diets, unless the public is informed as to the limitations in those diets. The *News Bulletin* of the Social Work Publicity Council, 130 East 22d Street, New York, refers to one attempt at public explanation:

In the April issue we gave the opinions of some social work leaders about the wisdom of drawing attention to relief food budgets by reporting formal dinners of campaign workers or other laymen where relief budget meals were served. You may judge for yourselves, therefore, the constructive value of the way the Cleveland News presented the Associated Charities' food budgets. A staff reporter and his family lived a week on the food a client would have, and the reporter wrote daily of their experience. The tone of the writing was light and readable, helped along by pictures of the family planning, preparing and consuming the meals. The conclusions seemed to be that it was not a great hardship for a week, but that even for that length of time it took careful planning. It is certainly well for the public to know what clients are expected to live on, and maybe this is one acceptable way for the realization to reach them.

Inner-Convention Interpretation—The strictly medical discussions in the annual meeting of the National Tuberculosis Association include the presentation of developments of much significance to the administrators of state and local tuberculosis associations. Many of the administrators are without medical training. All of them have a full-time job at the annual meeting in keeping up with the important sessions of the Sociological and Administrative Sections.

Near the close of the conference a special session was held for the non-medical delegates in which the significant utterances in the Pathological and Clinical Sections were reviewed.

The selecting and interpreting was done by Drs. Esmond R. Long and Iago Galdston. They were interesting and effective.

Health Material in Libraries—Have we given enough attention to health books and periodicals in public, school and other libraries—to the useful possibilities, and the dangers as well?

In "Social Hygiene and the Libraries," Pearl A. Winchester reports on a study made with the coöperation of public, school, state, normal school, medical school, and university libraries, including 22 in Canada.

The returns show a fairly generous number of books, with a rather high average in quality. The report gives considerable interesting detail as to the particular books found most widely in the different types of libraries.

Most widely distributed were titles by Wiggan, Darwin and Jane Addams, along with several titles from the list of selected books issued by American Social Hygiene Association.

The report discusses the problem of "closed shelves"; also subject headings for library catalogues. In *Journal of Social Hygiene*, 450 7th Avenue, New York. June, 1933. *35 cents.*

HEALTH PLAYS

The *Bulletin* of the National Tuberculosis Association reports:

"Shadows," a health play by Mrs. Alice McGouldrick, Executive Secretary of the Maine Public Health Association, was recently published by that association and is available for distribution through their office, 256 Water Street, Augusta, Maine.

The play is well written and presents two contrasting scenes. The first scene is laid in 1882 and tells the story of a tuberculous family with the shadow of despair hanging over them before the discovery of the tubercle bacillus and modern public health organization. The second scene is in 1932 and takes place in the office of a public health nurse or tuberculosis association. It tells the story of the modern organized campaign against tuberculosis. The play is simple in scenic requirements and could easily be presented by any local group, and may also be altered in the last scene to fit local conditions.

For the following address your state tuberculosis association:

"Thanks for Health Day," a playlet for grade, rural, private and parochial schools and "A Trip to Yesterday," a pageant for the high schools, are the titles of the two new programs which have been arranged for the schools of the nation for presentation on Thanksgiving Eve, Wednesday, November 29.

These two plays are offered in place of the school stories of former years and as a means of keeping in step with modern trends which call for dramatization of the story of the Seal. . . .

Both programs, which are timed for less than an hour, close with the distribution of bangle pins (small double barred crosses) and as the pupils receive their pins they will be asked to "tell two" (the 'tell two' pledge) people the story of the Seal as they have learned it through the program. . . .

Included with the "Thanks for Health Day" program is a list of ten class room activities and the whole is set up attractively in clip sheet style (all spread out on one sheet so that the teacher has only to cut it apart for the various assignments). A poster and bangle pins must accompany the clip sheet and two clip sheets are required for each teacher—one to cut up and one for copy.

HONORABLE MENTION

To National Society for the Prevention of Blindness, 450 7th Ave., New York City: for giving the addresses of all periodicals mentioned under "Current Articles of Interest," a department in *The Sight-Saving Review*, a quarterly magazine.

Health workers are too busy to go to a public library, where they may or may not locate the addresses of periodicals, copies of which they wish to order.

HEALTH WORK IN SCHOOLS

References which we have not examined under the above heading have been listed in *Library Index:*

Campbell, Alfred. The development of a health program in a rural consolidated school. Hoosier health herald (Indianapolis, Ind.) 14: 109–12, June, 1933.

Kincaid, W. A. Health-service activities. School executives magazine (Lincoln, Neb.) 52:343–44, June, 1933.

Jackson, Edward, M.D. Health examinations in schools. Colorado medicine (Denver) 30:215–18, June, 1933.

Measurement of malnutrition in school children. Lancet (London) 224:1311–12, June 17, 1933.

Schrader, E. L., M.D. Student-health-service facilities. Hospital progress (St. Louis) 14:249–50, June, 1933.

Wrightstone, J. W. Trends of medical and nurse services in the public schools of New York State. Elementary school journal (Chicago) 33:769–76, June, 1933.

Library Index, "a weekly index to current periodical literature in the field of public health"; issued by National Health Library of the National Health Council, 450 7th Avenue, New York. $2.50 a year.

HEALTH EDUCATION

The following references appear in *Library Index:*

Lokrantz, Sven, M.D. Vacation health teaching. American childhood (Springfield, Mass.) 18:15–17, June, 1933.

Rogers, J. F., M.D. Alcohol. How changing liquor laws revive a teaching problem. School life (Washington, D. C.) 18:163, May, 1933.

BOOKS RECEIVED

PSYCHO-ANALYSIS TODAY: ITS SCOPE AND FUNCTION. Edited by Sandor Lorand. New York: Covici-Friede, 1933. 370 pp. Price, $4.25.

OBSTETRICS FOR NURSES. 10th Ed. By Joseph B. DeLee. Philadelphia: Saunders, 1933. 665 pp. Price, $2.75.

NERVOUS AND MENTAL DISEASES FOR NURSES. 2d Ed. By Irving J. Sands. Philadelphia: Saunders, 1933. 281 pp. Price, $1.75.

THE NEW DENTISTRY. A PHASE OF PREVENTIVE MEDICINE. Six Lowell Lextures by Leroy Matthew Simpson Miner. Cambridge: Harvard University Press, 1933. 219 pp. Price, $2.00.

THE HEALTH SCHOOL ON WHEELS. By J. Mace Andress and I. H. Goldberger. Boston: Ginn, 1933. 399 pp. Price, $.76.

THE NUTRITIVE PROPERTIES OF MILK IN RELATION TO PASTEURIZATION. A REVIEW OF EXISTING KNOWLEDGE. By J. D. Stirling and J. H. Blackwood. Kirkhill, Ayr, Scotland: Hannah Dairy Research Institute, 1933. 80 pp. Price, $1.00.

STOP THAT SMOKE! By Henry Obermeyer. New York: Harper, 1933. 289 pp. Price, $2.50.

IDEAL MARRIAGE: ITS PHYSIOLOGY AND TECHNIQUE. 7th Ed. By Th. H. Van de Velde. New York: Covici-Friede, 1933. 323 pp. Price, $7.50.

CHRONIC ILLNESS IN NEW YORK CITY. By Mary C. Jarrett. New York: Columbia University Press, 1933. 636 pp. Two volumes, $5.00.

THE APPROACH TO THE PARENT: A STUDY IN SOCIAL TREATMENT. By Esther Heath. New York: Commonwealth Fund, 1933. 163 pp. Price, $1.25.

THE THERAPEUTIC AGENTS OF THE QUINOLINE GROUP. By W. F. von Oettingen. New York: Chemical Catalog Co., 1933. 301 pp. Price, $6.00.

CANCER AND OTHER CHRONIC DISEASES IN MASSACHUSETTS. By George H. Bigelow and Herbert L. Lombard. New York: Houghton Mifflin, 1933. 355 pp. Price, $4.00.

BOOKS AND REPORTS

Peace of Mind and Body—*By William S. Walsh, M.D. New York: Dutton,* 1933. 243 pp. Price, $2.50.

Everyone desires peace of mind and body but its availability is determined mainly by the ability of individuals to live intelligently. Back of this is the necessity of health as a prerequisite to normal adjustment. All rules and regulations, plans and schemes for teaching people to manipulate their lives so that they may attain rational living appears dubitable in the light of the basic tendencies of mankind to magnify difficulties, to utilize leisure time without great thought and to stultify an individuality in the avid interest of attaining economic security.

Dr. Walsh suggests what is reasonable: the elimination of the disturbing environmental factors so that one may realize the joys of tranquillity. The attainment of such a state involves both physical and mental hygiene in the interest of physical vigor and vitality, personal satisfaction, useful and pleasant employment of all hours, whether in work, play or rest. The attainment of social adequacy assumes an important place in this scheme of organismic equilibrium.

Dr. Walsh is not a doctrinaire but his advice is based upon a number of factors which are beyond individual control. His approach involves a capacity for self-direction and intelligent self-guidance, which are not readily attainable. His mode of life calls for substantial courage, a splendid honesty with one's self in addition to a specialized knowledge of the essentials and art of living, which actually is the possession of comparatively few of our active population. To learn how to grow up, how to live in the home and on the job, how to withstand pressures and how to enjoy the release into freedoms, how to measure one's own satisfactions, in terms of a practical standard of equability and equanimity is in itself a threat to the peace of mind unless the innate organization of the individual is equal to the task.

Peace of mind and body, after all, are by-products of living. General rules are difficult to follow. Everyone has personal problems to solve, out of which varying degrees of peace are attained. Sometimes life is merely an armed armistice, at other times it is retreat; and yet there is some peace to be found in each of these though perhaps to the onlooker it merely represents strife and discomfort. The goal of peace—pleasurable and persistent—warrants a battle.

Dr. Walsh has presented a non-technical, popular volume dealing with psychological values which are bound up in living, learning, and loving, intelligently, without losing emotional equilibrium.

IRA S. WILE

Child Care Today—*By Bela Schick, M.D., and William Rosenson, M.D. New York: Greenberg,* 1932. 320 pp. Price, $2.50.

This is a well-written book by men of recognized ability, the facts being so simply stated that the subject matter is easily comprehended by the layman. It was felt by the authors that there was a distinct need for a book that would assist parents in laying the foundation for sound physical and mental health in infancy and childhood.

Part I deals with the important phases of prenatal care and influences.

Part II considers the details of general hygiene and feeding of infants.

There is an interesting chapter on "Guiding the Infant in His Intellectual and Emotional Growth."

Part III covers the preschool child—the child between 2 and 6 years of age—which has come to be called the "neglected age." The general care and hygiene of this child is well presented, with the newer ideas of nutrition and diet. There is a most important consideration of child guidance and behavior problems.

Part IV emphasizes disorders and diseases of childhood, especially from the preventive standpoint. Recognized procedures of prevention are fully considered and evaluated.

ELDRED V. THIEHOFF

The New Dentistry: A Phase of Preventive Medicine (Six Lowell Lectures)—*By Leroy Matthew Simpson Miner, D.M.D., M.D. Cambridge: Harvard University Press,* 1933. 219 pp. Price, $2.00.

We would pass this book without review, except that it comes from the Harvard University Press, from which we are entitled to receive correct information, and it is written by the Dean of the Dental School of that University.

The lectures of which it is composed were delivered to the laity, and the book is intended for nonprofessional reading. It contains some useful information. We would, however, recommend both to the author and the editor of the Harvard University Press the use of a good medical dictionary, and a study of history, and would refer them particularly to Bulletin 19 of the Carnegie Foundation for the Advancement of Teaching, to the Dictionary of American Medical Biography by Kelly and Barrage, on Crawford W. Long, and the Index Catalogue of the Surgeon General's Library, Third Series, Vol. VII, page 764, Long (Crawford Williamson).

MAZŸCK P. RAVENEL, M.D.

Amateur Nurse—*By Mary Wright Wheeler, R.N. Indianapolis: Bobbs-Merrill,* 1933. 234 pp. Price, $2.00.

This book will undoubtedly find a place among wives and mothers in average homes who sooner or later may be called upon to be amateur nurses. The style is informal and gay, sometimes even saucy. It is easy reading for laymen, because it is free of heavy scientific terms, and written in language for the "man in the street."

Obviously the book was not written by a public health nurse, because there is a little too much emphasis put on home medication, even though the doctor is mentioned in nearly every other paragraph. Argyrol for a baby's inflamed eyes and to be swabbed on a sore throat, and "perles" of amyl nitrite for angina pectoris and asthma are illustrations of this.

Not all physicians will agree that the only place for the patient ill with pneumonia is the hospital. This disease does call for good care, but many cases have recovered at home with nursing furnished by members of one's own family, a practical nurse, a visiting nurse, or a private duty registered nurse. Some authorities feel that babies and very young children recover more rapidly and surely at home than in the hospital separated from parents and family.

The chapter on nursing care of prenatal patients is particularly good, but those that shine above all others are "The Amateur Nurse Lovingly Tends an Aged Invalid," "Tempting an Ailing Appetite," and "Good Invalids—Makings of and Encouragement to Be." Every trained as well as every amateur nurse should read these chapters. The author certainly knows her mental hygiene when dealing with elderly people. She could even give Dorothy Dix some pointers on how to solve the mother-in-law problem.

EVA F. MACDOUGALL

The Examination of Waters and Water Supplies—*By John Clough Tresh, M.D., John Foster Beale, and Ernest Victor Suckling. (4th ed.) Philadelphia: Blakiston,* 1933. 824 pp., 61 ill. Price, $9.00.

The authors have tried to maintain the general plan of the first edition. With the greater utilization of sources of water, more emphasis has been placed upon the quality and purification of river waters. The most recent methods of sterilization of water by the use of minute amounts of silver and chloramine, for example, have been included. Sources of water, the mineral content, and the effect upon health of the various inorganic constituents are considered. Methods for the determination of the numerous elements in water are described and the properties of water which make it suitable or unfit for particular purposes are given.

Part IV is devoted to the interpretation of the results of physical, biological and chemical examinations. The lead solvent action of various waters and possible remedies are discussed, although this is of minor importance from the standpoint of readers in this country, where lead is only sparingly used as a conduit for drinking water.

A reasonable portion of the book is concerned with the bacteriological examination of water, the survival of bacteriological types, the enumeration, the use of different bacteriological indicators of sewage pollution, and the isolation and identification of pathogenic species. The last section deals with the purification and treatment of waters. Unfortunately, few data are given which might indicate the relative efficiency of different purification methods. A chapter on the treatment of water for the removal of undesirable odors and tastes will be of interest to many. This includes the use of activated carbon. The fundamentals of swimming pool control are given in the final chapter. This is followed by 36 plates illustrating the microscopic organisms and debris found in waters derived from a variety of sources, and by an appendix which contains formulae for use in the chemical and bacteriological examinations of water and sewage.

The printing and make-up are excellent. NEWELL R. ZIEGLER

The Medical Secretary—*By Minnie Genevieve Morse. New York: Macmillan,* 1933. 162 pp. Price, $1.50.

As one, who like the woman in the Bible, has suffered many things from many physicians, in the literary sense at least, the reviewer is tempted to indulge in enthusiasm over this little book, and would do so if it could be placed in the hands of all physicians as well as their secretaries, and they be made, in the words of the Episcopal Prayer Book, to "read, mark, learn, and inwardly digest" it.

The author writes from her experience of 10 years as a medical secretary, and 9 as a member of the executive staff of a general hospital, 3 of which included the training of young women for hospital record-room work. It is evident that she has made good use of her experience.

Short as the book is, it covers practically every point necessary, beginning with qualifications and personality desirable for secretarial work. She even considers such points as answering the telephone, a point the importance of which is probably not appreciated by many. Good advice concerning the handling of patients, and of correspondence, proper forms and style, etc., are given. Next comes advice on medical research, card indexing, abstracting of medical articles, and preparing of medical manuscripts, bibliographies, etc. Two pages are given to the signs used in correcting proof. A very useful section of the book, some 62 pages, is

devoted to medical terminology, which is remarkably complete for the space given, and correct.

There are only two things which we feel inclined to criticise: the definition of the prefix "meta," and the use of the word "receptionist," meaning the person who receives in the office. With such a rich language as English, there is hardly any excuse for coining such a terrible word.

The book is well printed and put together, and can be heartily recommended. MAZÝCK P. RAVENEL

Die soziale Bedeutung und Beurteilung der Kreislauferkrankungen —*By Dr. Franz Grünbaum. Leipzig: Georg Thieme,* 1933. 128 pp., 20 figs. in text. Price, M. 4.50.

This is No. 21 in the series of booklets on Labor and Health, a social-medical series from the Labor Ministry of Germany. This field of social-medical service has lagged behind others, notably those of tuberculosis, and of late of venereal diseases, infants' diseases, cripples, and cancer. The growth of information as to the significance, frequency, and the cause of diseases of the circulatory system has brought this field into prominence, especially in the United States. Mortality records in Germany from 1904 to 1928 show a sharp decline in total mortality and especially in that due to tuberculosis. On the other hand, deaths from heart disease have shown a statistical increase of about 60 per cent, rising most rapidly in recent years. A similar increase occurs in Massachusetts. Heart disease is, as a rule, the leading cause of death, being a little greater in most age classes in females than in males, and attaining its maximum incidence in sixty to seventy years, namely of 26.91 in males and 27.45 per cent in females in Prussia in 1928. There are suggestions that the increase in recent years is associated somewhat with the growth of urban life, but the statistical data are as yet inadequate to make this certain. Organic heart diseases are clearly associated with rheumatic conditions in decreasing ratios in persons from ten to fifty years of age and with the incidence of infectious diseases, in increasing ratios, from forty to eighty years.

The social significance of this group of diseases is great, since they profoundly affect the amount and kind of labor that the persons thus afflicted can perform. They constitute a large element in the burden of invalidism which the family and society must carry. C. A. KOFOID

Annual Report of the Bureau of Sanitary Engineering, Maryland State Dept. of Health, 1932.

It is interesting to report that the lowest typhoid fever death rate experienced in the history of the State of Maryland occurred this year when a death rate of 3 per 100,000 was reached, with virtually none of this attributable to public water supplies. $7,071,000 were expended for water supply and sewerage facilities in the state or $1,179,000 less than in 1931. Permits were issued for 143 of the 155 camps and for 8 of the 20 swimming pools inspected. Full-time sanitary engineering in Anne Arundel County permitted regular monthly sampling of all milk sold; special sampling from individual cows suspected of mastitis, gargot and inflamed udders; careful investigations at 45 dairy farms, and inspections of all schools in the county. Improvements have been made at many of the dairies and schools.

Two epidemics of importance received special study. A para-typhoid A fever outbreak in a mining community at Vindex developed serious proportions in the late summer and, during a picnic at Fairview Beach, a severe epidemic of intestinal disturbance occurred. By

means of the salt test it was demonstrated that a suspected privy was the source of contamination of a semi-private dug well used as a source of water supply by the community. The well was inadequately protected against surface and underground drainage. A dug well furnishing drinking water for the public at Fairview Beach was not so definitely established as the cause of this epidemic, but it was so constructed as to be exposed to pollution from surface wash and probably shallow infiltration.

Developments in swimming pool sanitation and control consisted essentially in prescribing for the control of ringworm or athlete's foot. Cleansing of equipment with calcium hypochlorite and foot baths containing either a 2 per cent solution of calcium hypochlorite or a 15 per cent solution of sodium thiosulphate has been suggested, although the dechlorinating possibilities of the latter have made its use somewhat undesirable.

Early in the year, a report was prepared on the operation of sewage treatment plants at state institutions, based upon inspections and analyses of samples collected during 1930 and 1931.

The industrial waste that offered the important problem of the year was that from milk plants. This industry, without efficient regulation and control of supply and demand, was forced in several instances to discharge tons of skimmed milk containing valuable food and fertilizer elements into sewage treatment works and streams.

The recommendations of the Chief Engineer were accepted by Baltimore City in its refuse collection and disposal problem, and resulted in the construction of a new 600 ton incinerator which is to become city property at the expiration of the 10-year contract, and will save the city $324,400 annually.

The Water Resources Commission completed its survey and recommends the creation of a permanent Water Resources Commission of Maryland.

A. W. BLOHM

Social Work and Educational Problems in Germany—*Series 1, of 6 numbers of 10 mimeographed pages each, on present conditions in Germany, by Dr. Ruth Weiland, Manager of the Deutsche Zentrale fuer freie Jugendwohlfahrt (Central Organization for Youth Welfare), Berlin, Germany.* $3.00 U. S. currency. Schwarzburg Allee 3, Berlin-Charlottenburg, Germany.

This series of informative monographs will present to the English and American readers material difficult to obtain except from those actually engaged in active welfare work in Germany. The author has been in such work for a number of years and is conversant with the current trends in the social, economic and cultural life in that country. Her practical experience as an executive in the central organization for the youth welfare movement in Germany qualifies her in presenting the results of her observations. These papers discuss the following subjects:

1. Federal and State Legislation in the Field of Child Welfare
2. Responsibility of Local Authorities for Needy Individuals
3. Importance of Sickness, Invalid and Old Age Insurance for the Economically Weak
4. Welfare in Actual Practice for the Unemployed
5. Development and Extent of Social Welfare in Country Districts
6. Effects of Unemployment on Delinquency of Children and Young People

The first number of this series appears in May and will be followed soon by the others. All those who wish to gain a broad view of what is happening in the social welfare field in Germany will do well to read this series.

RICHARD A. BOLT

American Red Cross First Aid Text-Book—*Philadelphia: Blakiston*, 1933. 237 pp., 110 illustrations. Price, paper, $.60, cloth, $1.00.

This book is to be used by the teacher for the instruction of First Aid Classes, and it would be hard to conceive of a text that is more complete or more compact. There is not a superfluous word in it. Everything from corns to hiccoughs and hives is discussed from the first aid point of view.

Plenty of space is given to the 3 chief causes of accidents in the home; burns, falls and poisons. An innovation is rules for the prevention of these accidents given along with their first aid treatment.

The illustrations are abundant, up to date and excellent. The book deserves to be the leading authority in the field for its purpose—to guide instructors of First Aid Classes. It is also undoubtedly the best general reference book on first aid that exists.

EVA F. MACDOUGALL

Official Proceedings of the Thirty-Eighth Annual Convention of the American Society of Municipal Engineers—*St. Louis: Printed by the Society*, 1933. 685 pp. Price, $7.50.

This volume of papers and discussions by well known authorities contains 3 chapters of particular interest from the public health standpoint, for they have to do with water supplies, refuse disposal, street cleaning, and sewage disposal. Other chapters contain matter of more or less health interest.

The chapter on water-works is a committee report on recent progress in producing pure water. Most municipal supplies are safe most of the time, and a large percentage of the typhoid which occurs could be prevented if more attention were given to the protection of the water after it has come into the control of the company or municipality.

Cross connection with polluted water, leakage of well casings and conduits, and failure to chlorinate continuously are sources of danger which are now receiving more attention than formerly.

All recent filtration plants have been of the rapid, or mechanical, type. The only large cities on the Great Lakes without filters are Chicago and Milwaukee, and both are considering purification.

The removal of tastes and odors from water by activated carbon is being practised at over 400 municipal plants, at an average cost of 1 cent per 10,000 gallons.

There are 175 municipal water softening plants in the United States, of which about one-third treat well waters. Usually, the saving in soap justifies the cost.

Refuse disposal and street cleaning have recently been the subject of sharp budgetary cuts, but in spite of this there has been no great reduction in the work done. The savings have been made chiefly by wage reductions, stagger employment, speeding up, and increased mechanization.

Incineration, hog feeding and dumping are the usual methods employed for disposal of garbage. In the year ended June 30, 1932, there were 17 incinerators of from 50 to 600 tons daily capacity built in the United States. A number of incinerators were erected for the screenings produced by sewage disposal plants.

Closed vehicles with low-loading sides have made their appearance in a number of American cities for collecting refuse, and a number of designs have recently come upon the market; but aside from this no special advance in public cleansing methods or equipment is noted.

An excellent paper by Major I. S. Osborn, with discussions by a number of qualified persons, deals with the tech-

nical aspects of incinerator design. Others were on recent developments in sewerage and sewage disposal, by Albert P. Learned; on construction costs of sewage treatment works, by Samuel A. Greeley; on operation of sewage treatment works, by Harry A. Beaumont; and on modern methods of dewatering sludge, by Edmund B. Besselievre.

These papers were read January 16–18, and the *Proceedings* published on April 1, an example of prompt, enterprising executive ability which many other societies might well imitate. Its early appearance adds immensely to the value of the volume.

GEORGE A. SOPER

Towards Mental Health: The Schizophrenic Problem—*By Chas. Macfie Campbell. Cambridge: Harvard University Press,* 1933. 110 pp. Price, $1.25.

Dr. Campbell is a psychiatrist of wide experience and broad horizons. He offers a wealth of material, succinctly discussed, pointedly presented in a manner that should stimulate all readers who are interested in public health.

There is a clear demonstration of the difference between the fields of physical and mental hygiene. The larger measure of etiological certainty that obtains in promoting immunity from diphtheria sharply contrasts with the poorly formulated factors operating in the field of mental disorder.

Workers in public health must learn to perceive the significance of the reaction to living in its influence upon human happiness. Functional qualities of life are bound up in the complex problems of mental hygiene rather than the quantitative factors of vitality, which form the major phases of public health service.

Dr. Campbell selected the schizophrenic field rather than the subject of dementia praecox, thus indicating his appreciation of the limitations of nomenclature and the uncertainty of much of our present day symptomatology as the basis of final diagnosis. His "schizophrenic territory" especially concerns public health authorities, because those living therein are most likely to become social liabilities.

Forty-three cases are discussed in terms of their reaction types. His exposition centers upon 3 main phases which recur most frequently in clinical histories: (1) the question of an adjustment in terms of the sex instinct and the memories of past sexual experience; (2) the problem of parent-sibling relationships, (3) the question of attaining an individual personal value in social groups.

The third chapter discusses heredity and environment and places the main emphasis upon education and environmental factors, because of the very limitations of hereditary material. Just as in public health work there was need for social coöperation and support in order to prevent tuberculosis, so the prevention of mental disorders calls for the education of individuals, families and communities.

Rigid community standards and demands for conformities tend to lessen mental stability and need curbing. Educational values enable each person to accept his real limitations and to function in terms of his complete organic potentials.

This is a presentation of the three Adolph Gehrmann lectures in hygiene given at the University of Illinois College of Medicine in 1932. The issues discussed, the cases presented and the viewpoints expressed are of paramount importance and merit reading and consideration by public health workers who have not yet appreciated the significance of individual adaptation as a factor in public achievement and communal welfare.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

Diabetes in Married Women and "Maiden Ladies" — Among New Yorkers over 45 years, the diabetes death rate in single women is no higher than in bachelors, but the rate in married and widowed women is more than double that of married men. Is this due to the fact that married women are fatter than single, or because they have borne children? Other statisticians are invited to analyze their records to find out if the number of pregnancies affects the rate.

AXON. Diabetes in Older Adults by Civil Condition and Sex. Quart. Bull. (New York City Dept. of Health), 1, 2:29 (June), 1933.

General Protection from Specific Immunization—Here are significant findings:

"1. . . . exercise of the defense mechanism by inoculation with heterologous antigens increases the resistance . . . to the subsequent action of various infectious agents and toxin substances.

2. . . . "this increased resistance . . . is the result of a mobilization, strengthening, and training of the defense mechanism.

3. . . . "it may be sufficient to modify the cause of subsequent infections . . . such as poliomyelitis or post-vaccinal encephalitis.

4. . . . "specific immunization . . . may be valuable in increasing resistance to various subsequent infections."

ARMSTRONG, C., and HARRISON, W. T. Heterologous Experience (Immunization) as a Factor in Resistance to Disease. Pub. Health Rep. 48, 22:597 (June 2), 1933.

Phage Proves a Weak Reed in Water Purification — Reasons why bacteriophage cannot be expected to be a useful agent in the purification of polluted waters are briefly set forth. The studies reviewed indicate that many research workers have been led to believe in the sanitary value of the phage.

BEARD, P. J. Rôle of Bacteriophage in Natural Purification. J. Infect. Dis. 52, 3:420 (May-June), 1933.

Looking at Mortality Rates—There is no evidence in the Massachusetts death rates, conclude the authors, that the physically unfit are coddled in childhood, for the mortality rates in middle life, which should increase if we were rearing a race of weaklings, do in fact show a gratifying decline.

BIGELOW, G. H., and HAMBLEN, A. D. What Are Death Rates in Massachusetts Doing? New Eng. J. Med. 208, 25:1313 (June 22), 1933.

Blood Cultures from Rheumatic Fever—This is the brief and disturbing conclusion to a very long and involved dissertation on rheumatic fever: "Diplostreptococci (alpha type) and pleomorphic bacilli may be recovered repeatedly from the blood of patients (and others). . . . These organisms apparently represent stages in the life cycle of the same organism. A specific etiologic relationship between these organisms and rheumatic fever is questioned."

CALLOW, B. R. Bacteriologic Investigation of the Blood of Rheumatic Fever. J. Infect. Dis. 52, 3:279 (May-June), 1933.

Why We Fail to Detect Tuberculosis—Principal reasons for failure to diagnose tuberculosis early are that symptoms are absent and the doctor is not consulted. When he is, too much dependence is placed upon physi-

cal examination. History of contact is of some slight diagnostic value in children but not in adults. A roentgenogram is the only way to avoid mistakes. A tuberculin test should be given to all children and some adults.

CHADWICK, H. D. Early Detection of Pulmonary Tuberculosis. New York State J. Med. 208, 22:1143 (June 1), 1933.

Diphtheria Immunization and Tuberculosis—Schick positive children suffering from tuberculosis were immunized successfully against diphtheria with three injections of toxoid and without troublesome reactions.

PARISH, H. J. Immunization of Tuberculous Children Against Diphtheria with Formol Toxoid. Lancet 224, 5725:1063 (May 20), 1933.

Disposing of Sewage Sludge—The newer developments in the 57 varieties of sludge treatment found the country over are summarized in an inclusive discussion of this most difficult phase of sewage disposal. The authors conclude that sludge handling has not kept pace with other advances in sewage treatment.

RUDOLFS, W., and CLEARY, E. J. Sludge Disposal and Future Trends. Sewage Works J. 5, 3:409 (May), 1933.

Nursing Service and Relief—How the New York State Relief agency supplied nursing care for dependent families, utilizing the services of nurses who themselves needed aid, furnishes an important chapter in the story of better health administration.

SHEAHAN, M. W. An Experiment in Double Relief. Pub. Health Nurs. 25, 7:378 (July), 1933.

Successful Results from a Scarlet Fever Toxoid—A method is described for the concentration of scarlatinal streptococcus toxin to increase the content fourfold without increasing total nitrogen. Detoxification methods are given. Three doses administered to children under 15 years produced only mi'd symptoms and induced a Dick negative condition in 87 per cent of the cases.

VELDEE, M. V. The Preparation of a Scarlet Fever Streptococcus Toxoid and Its Use in Active Immunization. Canad. Pub. H. J. 24, 6:255 (June), 1933.

Industrial Hygienists, Take Note—Methylene blue, an antidote for cyanide, is not a satisfactory one for carbon monoxide. Evidence is presented showing that its use may induce fatalities that might otherwise not occur.

HAGGARD, H. W., and GREENBURG, L. A. Methylene Blue, a Synergist, Not an Antidote, for Carbon Monoxide. J.A.M.A. 100, 25: 2001 (June 24), 1933.

Contaminated Eclairs Poison 150 Women—Golden staphylococcus colonies isolated from eclair filler were cultured and the filtrate fed to volunteers. Symptoms of food poisoning developed quickly to prove that the eclairs were the culprits causing a large outbreak of digestive disorders. The volunteers who took the filtrate ought to be given a niche in the hall of public health fame. How the virulent staphylococcus got into the filler and from whence it came were not disclosed.

MCBURNEY, R. Food Poisoning Due to Staphylococci. J.A.M.A. 100, 25:1999 (June 24), 1933.

Can Venereal Disease Cases Really Be Followed?—Services of a social worker were offered to a group of practicing physicians for the follow-up of delinquent venereal patients and sources of infection. What the outcome was, and the philosophic discussion of the possibilities of this line of attack, will interest all health officials who have the fortitude to look this problem in the eye.

NELSON, N. A. The Follow-Up of Gonorrhea and Syphilis in Private Practice. New Eng. J. Med. 203, 22:1153 (June 1), 1933.

NEWS FROM THE FIELD

DR. CHARLES PORTER

PRESIDENT OF THE SOCIETY OF MEDICAL OFFICERS OF HEALTH

AT a general meeting of the Society of Medical Officers of Health, held recently, Dr. Charles Porter, M.D., C.M., B.Sc. (P.H.) Edin., M.R.C.P. Edin., Barrister-at-Law, the well known Medical Officer of Health of the Metropolitan Borough of St. Marylebone, London, was unanimously elected President of the Society for the session 1933–34, and will take office on October 1st next. Dr. Porter, who is Deputy Chairman of the Council of the Royal Sanitary Institute, of England, is widely known for his active and wholehearted support in connection with furthering the efforts of a number of societies whose aim and object it is to continue to raise the standard of the health of the community. He is author and part-author of a number of works which are regarded as standard authorities upon the subjects dealt with. He is an ideal chairman of meetings and, socially, his personality has made him a host of friends, who will congratulate him upon his fresh honor. To these congratulations we add our own.

FINANCING PUBLIC IMPROVEMENTS

THE Industrial Recovery Act, passed by Congress June 13, 1933 (Act H. R. 5755), includes an appropriation of $3,300,000,000 to finance public improvements. It is stated that under the provisions of the Act there is a possibility for local communities to secure necessary public improvements, such as sanitary water system, sewage systems, etc. This would indicate the possibility of securing necessary public health improvements under the provisions of the Public Works Title of the Industrial Recovery Act.

IMMUNIZATION PROGRAM FOR DENVER

RECOMMENDATIONS framed by the committee on relations with public schools of the Medical Society of the City and County of Denver have been adopted by welfare agencies as the basis of a program of immunization for the city and county. Provision was made for vaccination of all new-born infants occupying free beds at the Denver General and Colorado General hospitals and immunizations against both smallpox and diphtheria for all infants admitted to welfare stations. Free immunization of school children in poor districts and of poor children in other districts if certified by the school

nurse was recommended. Parents are to be urged to have their children immunized by the family physician.

The committee also recommended that the society sponsor a campaign of education among physicians to prepare them for the work of immunization, including demonstrations of the technic of giving toxoid, the Schick test, and smallpox vaccination. In addition, literature on immunization, prepared jointly by the society, the city health department and the school health authorities, will be distributed among parents' organizations, especially if a case of smallpox or diphtheria appears in the schools.

CANADIAN PUBLIC HEALTH MEETING

THE 22nd Annual Meeting of the Canadian Public Health Association was held in St. John, N. B., June 19, 20, and 21. There were two General Sessions, two meetings of the Vital Statistics section, and one each of the sections on Public Health Nursing and Laboratory. All were well attended.

Dr. John A. Ferrell, President of the American Public Health Association, attended the meeting and extended the greetings of the A.P.H.A.

Dr. William Warwick, Deputy Minister of Health of New Brunswick, is President of the Canadian Public Health Association for 1933, and Dr. Alphonse Lessard, Provincial Health Officer of the Province of Quebec, was named as President-Elect, to serve through the year 1934.

MISSOURI STATE BOARD OF HEALTH ABOLISHED

THE State Department of Health of Missouri has been created to supplant the old state board of health, through the enactment of recent legislation. The position of secretary of the board has been abolished and provisions have been made for the appointment of a commissioner of health, to whom have been transferred all rights, powers and duties heretofore conferred on the secretary. Emmett P. North, of St. Louis, is president.

CELEBRATION OF BIRTH OF BERNARDINO RAMAZZINI

DR. LUIGI DEVOTO, President of the Permanent International Commission on Labor Medicine, announces that the 3rd Centennial Anniversary of the birth of Bernardino Ramazzini will be celebrated on October 4, 1933, at the Clinica del Lavoro, Milan, Italy. Two editions of Ramazzini's "De Morbis Artificum" will be published for the occasion, one in Italian and one in French. Appropriate auxiliary features, exhibits, etc., will accompany. Those who may be able to attend should address Dr. Emery R. Hayhurst, 1108 State Office Building, Columbus, Ohio (representing the United States on the Commission).

INDIANA STATE HEALTH DEPARTMENT NEWS

DR. V. K. HARVEY is the new head of the Indiana State Department, succeeding Dr. John H. Hare. Dr. Harvey was formerly with the Department for two years as Epidemiologist, after which time he was given leave of absence to take a year in Johns Hopkins.

BIRTH CONTROL REVIEW SUSPENDS PUBLICATION

AFTER sixteen years, the *Birth Control Review*, published by the American Birth Control League, Inc., of New York, will be discontinued, with the July issue.

In its place, the League will issue a monthly news bulletin, which will start publication in October, and retain the name Birth Control Review.

CLOSING DATE FOR SUBMISSION OF FELLOWSHIP APPLICATIONS

ALL members desirous of applying for Fellowship are hereby advised that their applications must be transmitted to the Executive Office not later than August 10, if they are to be finally acted upon by the Governing Council at the Indianapolis Annual Meeting.

ORGANIZATIONS MEETING WITH US AT INDIANAPOLIS

The organizations meeting at Indianapolis with the American Public Health Association are scheduled as follows:

October 7–9, Conference of State Sanitary Engineers.
October 7–9, Public Health Education Institute (Claypool Hotel).
October 9–12, International Association of Medical Health Officers.
October 9–12, American Association of School Physicians (Severin Hotel).
October 12–14, American Social Hygiene Association.
October 12, Central States Sewage Works Association.
October 12–14, International Association of Dairy and Milk Inspectors (Claypool Hotel).
October 12–14, Indiana State Nurses' Association (Severin Hotel).
October 12–14, Board of Directors of the Midwest Division, American Nurses' Association (Severin Hotel).

PERSONALS

DR. JAMES V. MAY, member A.P.H.A., was elected recently as President of the New England Society of Psychiatry.

EDWARD L. MILOSLAVICH, M.D., Fellow and applicant for Life Membership in the A.P.H.A., has accepted a position as Professor of Legal Medicine and Director of the Medico-Legal Institute at the Royal University, Zagreb, Jugoslavia.

DR. OSCAR D. LUDWIG, member A.P.H.A., has been appointed Health Officer of Marion County, Ind., to fill the unexpired term of the late Dr. Frederick W. Mayer, of Indianapolis.

DR. ELMER T. MCGAUGH, of Jefferson City, Mo., has been appointed to serve as Missouri State Health Commissioner for a term of 4 years, succeeding Dr. James Stewart, who also acted as secretary.

DR. BURTON K. KILBOURNE, of Fargo, N. Dak., was elected president at the annual meeting of the official organization for North Dakota Health Officers, at Fargo recently. Dr. Ernst G. Sasse, of Lidgerwood, also member of the A.P.H.A., was elected vice-president; and Dr. Arthur A. Whittemore, of Bismarck, was elected secretary.

DRS. JOHN S. MCCELVEY, of Temple, Tex., and SAMUEL A. WOODWARD, of Fort Worth, have been appointed to the Texas State Board of Health, it is reported. Dr. John R. Mahone, of Austin, was recently named Health Officer of Cameron County, to succeed Dr. William E. Spivey, of San Benito.

DR. JOHN A. AMYOT, member A.P.H.A., for 14 years Deputy Minister of National Health of Canada, and, recently of Pensions and National Health, has retired because of ill health. From 1900 to 1919 he was associated with the Provincial Department of Health of Ontario and also with the public health teaching staff at the University of Toronto.

DR. HAVEN EMERSON, of New York, Life Member and President-Elect of the A.P.H.A., addressed the graduating class of the Woman's Medical College of Pennsylvania at the 81st annual commencement, June 7, on distribution of medical care.

DR. ALBERT FRITSCHE, of New Ulm, Minn., has been appointed a member of the Minnesota State Board of Medical Examiners, succeeding Dr. George B. Weiser.

DR. EDWIN R. VANDERSLICE, member A.P.H.A., has been appointed to succeed Dr. S. Rowland Hill as Health Officer of Lansing, Mich., who held the position for 12 years.

DR. SAMUEL R. MCKELVEY, of Denver, member A.P.H.A., has been reëlected as secretary of the Colorado State Board of Health. Dr. McKelvey will become executive officer of the division of public health created as a part of the Colorado executive department in a reorganization of the state government by the last legislature. The new division combines all the functions of the state board of health, the meat and slaughter plant inspectors, and the state chemist under Dr. McKelvey's supervision, subject to control by the state board of health.

CONFERENCES

July 29–August 4, World Federation of Education Associations, Dublin.

September, 1933, European Reunion on Mental Hygiene and Prevention, Rome, Italy.

September 5–7, Seventh Annual Conference of the Pennsylvania Sewage Works Association, State College, Pa.

September 27–28, Second European Reunion on Mental Hygiene, Rome.

October 7–9, Public Health Education Institute.

October 7–9, Conference of State Sanitary Engineers, Indianapolis, Ind.

October 9–12, Sixty-second Annual Meeting of the American Public Health Association, Indianapolis, Ind.

October 9–12, American Association of School Physicians, Indianapolis, Ind.

October 9–12, Conference of State Laboratory Directors, Indianapolis, Ind.

October 9–12, International Society of Medical Health Officers, Indianapolis, Ind.

October 9–12, Association of Women in Public Health, Indianapolis, Ind.

October 12, Central States Sewage Works Operators Association, Indianapolis, Ind.

October 12, Indiana State Nurses' Association, Indianapolis, Ind.

October 12, Indiana League of Nursing Education, Indianapolis, Ind.

October 12–14, American Social Hygiene Association, Indianapolis, Ind.

October 12–14, International Association of Dairy and Milk Inspectors, Indianapolis, Ind.

November, 7th American Scientific Congress, Mexico City.

February 5–9, 1934, Third International Heating and Ventilating Exposition, Grand Central Palace, New York, N. Y.

March 29, 30, 1934, Annual Meeting of the American Association of Pathologists and Bacteriologists, Toronto, Ont., Canada.

Spring, 1934, Statistical Conference, International Statistical Institute, London, England.

1935, International Congress on Mental Hygiene, Paris.

Do You Want A Dictionary?

The A. P. H. A. Book Service offers for sale a new copy of **Webster's New International Dictionary of the English Language**, at a special discount of 25 per cent. 2700 pp., 6000 illustrations, published 1931 (G. & C. Merriam Co., Springfield, Mass.); list price $17.00, Book Service price $12.75.

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